

Service Manual

Stereo Cassette Player

Mini Cassette

RQ-S30



Colour

(K)... Black Type



Area

Suffix for Model No.	Area	Colour
(E)	Europe.	(K)
(EB)	Great Britain.	
(GH)	Hong Kong.	

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

RQ-S60 MECHANISM SERIES (AR90)

SPECIFICATIONS

Power Requirement:	Battery; DC 1.5V one "AA" size battery (not included) (Panasonic R6, LR6 or equivalent not included) Rechargeable Battery; DC 1.2V with an included Panasonic Rechargeable Battery (RP-BP62EYA) × 1..... (E, EB) (RP-BP61SY-1)..... (GH)
Power Output:	5mW + 5mW
Output Jack:	Headphones; 16Ω (mini jack Φ3.5)
Dimensions:	(W × H × D) 107.9 × 77.2 × 22.9mm
Weight:	165g (with rechargeable battery)

Charger: (E)	Input; AC 220V, 50Hz, 4W (RP-BC155EY-0) (included) Output; DC 1.2V, 350mA
(EB)	Input; AC 240V, 50Hz, 4W (RP-BC155EY-0) (included) Output; DC 1.2V, 350mA
(GH)	Input; AC 100~120V/220~240V 50/60Hz, 6VA (RP-BC161SYB) (included) Output; DC 1.2V, 550mA (included)
Frequency Range:	15~20,000Hz (with a normal tape) 15~20,000Hz (with a CrO ₂ tape) 15~20,000Hz (with a Metal tape)
Motor:	Electrical governor motor
Track System:	4-track 2-channel stereo playback
Tape Speed:	4.8cm/s

Note: Design and specifications are subject to change without notice.
Weight and dimensions are approximate.

CONTENTS

	Page
LOCATION OF CONTROLS	2
REMOTE CONTROL OPERATION.....	2, 3
POWER SOURCE	3
ACCESSORIES	3
PROCEDURE FOR THE REPLACEMENT OF THE MECHANISM BLOCK	4
PROCEDURES FOR DISASSEMBLY OF THE MAIN PARTS ON THE MECHANISM	5
DISASSEMBLY INSTRUCTIONS	6~9
MEASUREMENTS AND ADJUSTMENTS.....	10
TERMINAL FUNCTION OF IC'S	10

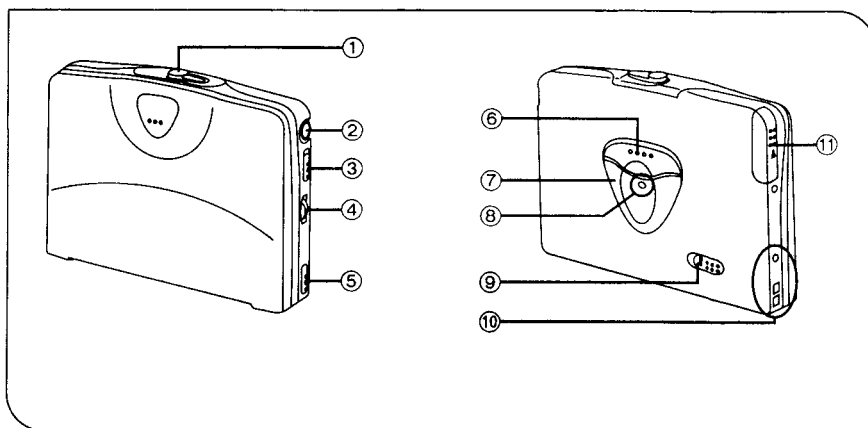
	Page
HOW TO CHECK OPERATIONS DURING DISASSEMBLY AND SERVICING	11, 12
SCHEMATIC DIAGRAM	13~15
PRINTED CIRCUIT BOARDS.....	15, 16
CABINET PARTS LOCATION.....	17
MECHANISM PARTS LOCATION.....	18
REPLACEMENT PARTS LIST.....	19
PACKAGING	19
RESISTORS AND CAPACITORS	20
REPLACEMENT PARTS LIST.....	21

Panasonic

LOCATION OF CONTROLS

Main unit

- ① **Cassette compartment cover open lever (OPEN)**
- ② **Headphones jack (Ω) 16 Ω (ϕ 3.5)**
- ③ **Dolby noise reduction selector (DOLBY NR)**
- ④ **Volume control (VOLUME)**
- ⑤ **Reverse mode selector**
- ⑥ **Hold switch (HOLD)**
Use to prevent unwanted operation.
The operation button is inoperable when this switch is set to hold (hold state).
- ⑦ **Operation button (\blacktriangle \blacktriangleright / \blacksquare , FF, REW, $\boxed{\text{TPS}}$)**
- ⑧ **Operation/battery check indicator (OPR/BATT)**
- ⑨ **Tone selector (OFF, S-XBS, TRAIN)**
- ⑩ **Connection part for battery case**
- ⑪ **Rechargeable battery compartment cover**

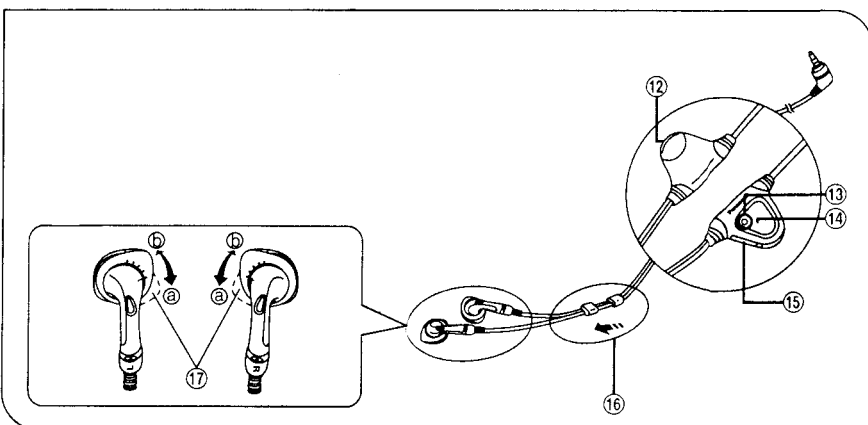


Stereo earphones with remote controller

- ⑫ **Volume control (VOLUME)**
- ⑬ **Operation indicator (OPR)**
Lights during operation.
- ⑭ **Remote control button**
- ⑮ **Hold switch (HOLD)**
- ⑯ **Slider**
When not in use slide up the slider to prevent entanglement of the cord.
- ⑰ **Fitting ring**

Before using the stereo earphones

The size of the earpiece can be adjusted.
When it's too loose in the ear, turn the fitting ring to (a), when it's too tight, turn to (b).



REMOTE CONTROL OPERATION

You can change the tape operation with the remote control button (a).

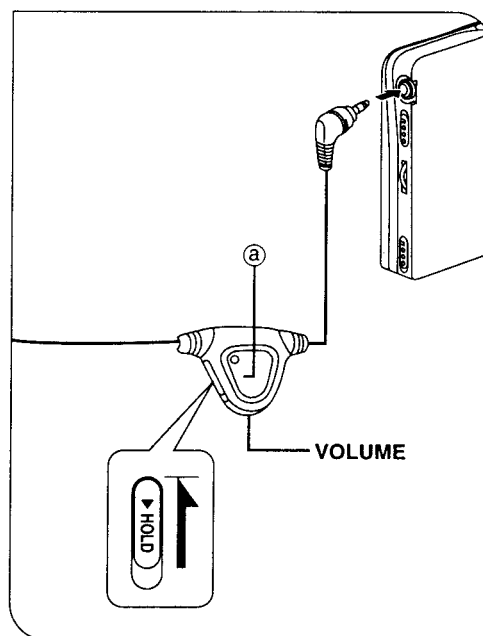
Before using, plug the stereo earphones into the Ω jack and be sure to release the hold state.

To prevent unwanted operation

You cannot activate remote control button when the HOLD switch is set to HOLD (hold state). Before using remote control button, release the hold state.

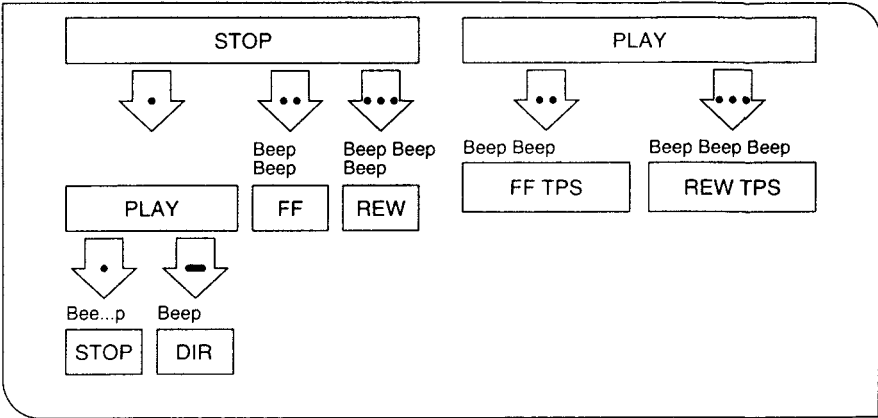
To adjust the volume

Before using the VOLUME on the remote control, be sure to adjust the volume control on the main unit. "5-7" is the average volume level.



To change the tape operation

- : Press once to play and stop.
 - : Press and hold to change the direction.
 - : Press twice for fast forward or FF TPS.
 - : Press three times for rewind or REW TPS.
- When pressing the button twice or three times in succession, press it within one second and at equal interval.
- Confirmation beep can be heard as shown on the figure.



POWER SOURCE

This player can operate on any of 2 different power sources:

1. Rechargeable battery (included)
2. Dry cell battery (not included)

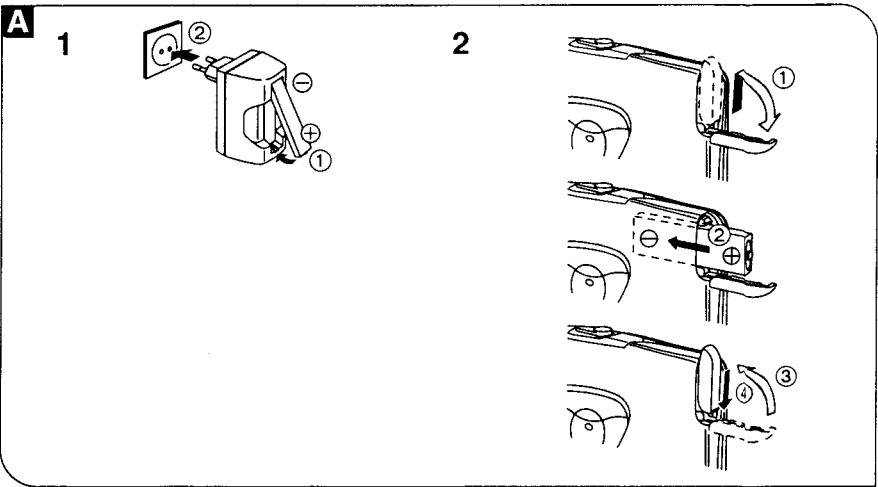
Rechargeable battery A

For its initial use after purchasing or after a long time interval (more than three months), be sure to recharge the rechargeable battery.

Normally 2 hours recharging will give approximately 4 hours tape playback (at 25°C).

•Play time may be shorter depending on the operation conditions, e.g. repeating fast forward or rewind etc.

- 1 Recharge the rechargeable battery.
 - For (EB), the shape of the charger is different.
- 2 Insert the charged battery into the unit.



Dry cell battery B

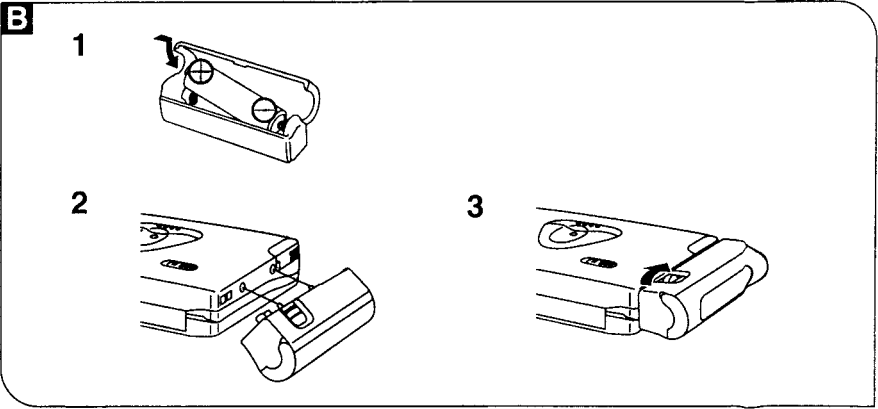
- 1 Insert a R6/LR6 battery (UM-3 or equivalent, not included) into the battery case.
- 2 Attach to the unit.
- 3 Turn the screw until it locks.

To extend the playback time

Install both types of battery (rechargeable and dry cell battery) in the unit.

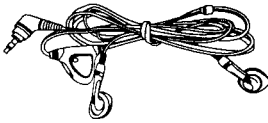
When the battery becomes weak

The OPR/BATT indicator will dim or turn off. Recharge the rechargeable battery or replace the dry cell battery with new one.



ACCESSORIES

Stereo earphones with remote controller 1 pc.
(RFEV124P-KS)



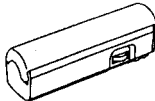
Rechargeable battery 1 pc.
(RP-BP62EYA (E, EB))
(RP-BP61SY-1 (GH))



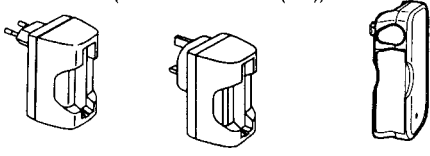
AC plug adaptor 1 pc.
(RJP0K2ZA (GH))



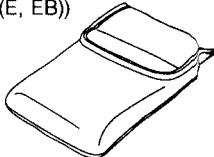
Battery case 1 pc.
(RFA0310-K)



Charger 1 pc.
(RP-BC155EY-0 (E)) (RP-BC161SYB (GH))
(RP-BC155EYB (EB))



Carrying bag 1 pc.
(RFC0019-K (E, EB))



■ PROCEDURE FOR THE REPLACEMENT OF THE MECHANISM BLOCK

• How to replace the mechanism block

The mechanism block is supplied without other parts as a semi-assembly. The head block, motor and belt are supplied separately from the mechanism block.

If the mechanism block is exchanged as a replacement assembly, follow the preparation procedure below.

Preparation procedure

Remove the head block, motor and belt from the mechanism to be replaced and replace those parts to the new mechanism block.

(Refer to the “PROCEDURES FOR DISASSEMBLY OF THE MAIN PARTS ON THE MECHANISM”.)

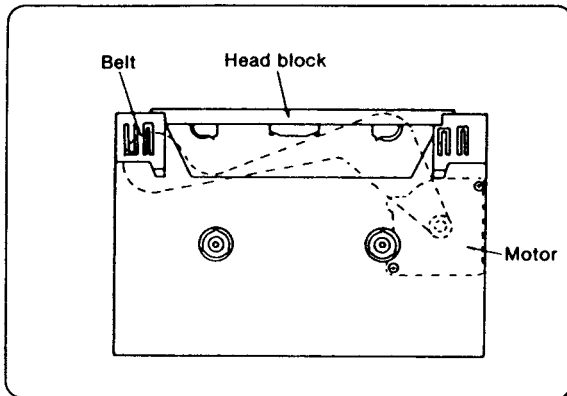
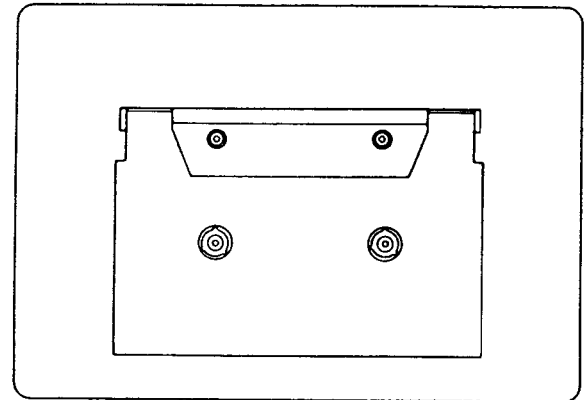


Fig. 1



Mechanism block

Fig. 2

Note: The adjustment of the mechanism block is unnecessary after replacement.

• How to replace the head block

The head and pinch roller are supplied together in the head block. The pinch roller is also supplied separately.

Preparation procedure

The head block for replacement is not supplied with a holder as shown in the figure below. Therefore, remove the holder from the block to be repaired and mount it to the new head block. Then, proceed to replace the head block. (Refer to the “PROCEDURES FOR DISASSEMBLY OF THE MAIN PARTS ON THE MECHANISM”.)

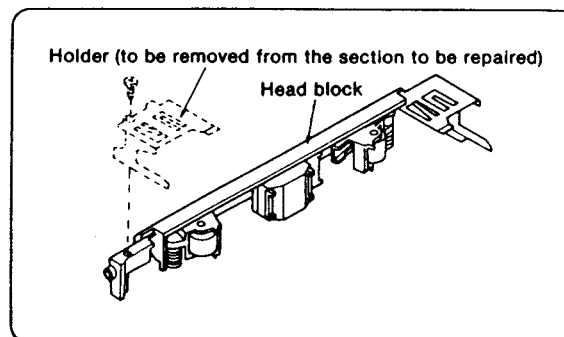


Fig. 3

Note: Head azimuth adjustment is unnecessary.

PROCEDURES FOR DISASSEMBLY OF THE MAIN PARTS ON THE MECHANISM

• How to remove the mechanism

Follow the procedures in Ref. Nos. 1~7 in the Disassembly Instructions. (See pages 6 and 7.)

※ After replacing the parts, refer to the notes for assembly. (See pages 8, 9.)

• How to remove the head block and pinch roller

1. Follow the procedures in Ref. Nos. 1 and 6 in the Disassembly Instructions, remove the cabinet ass'y and cassette lid ass'y.
(See pages 6 and 7.)
2. Unsolder the head FPC. (7 points.)
(See Fig. 4.)
3. Remove 2 screws (①, ②) in order to remove the head block. (See Fig. 5.)
4. Remove 2 washers. (See Fig. 6.)
5. Remove 2 springs in order to remove the pinch rollers. (See Fig. 7.)

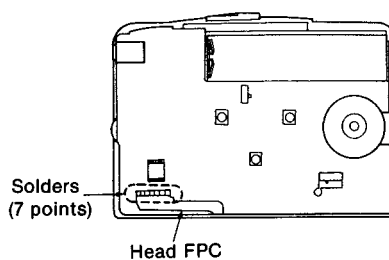


Fig. 4

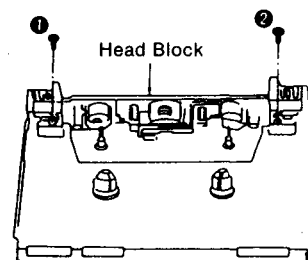


Fig. 5

• How to remove the motor and belt

1. Follow the procedures in Ref. Nos. 1, 2 and 6 in the Disassembly Instructions.
(See pages 6 and 7.)
2. Remove 2 screws (①~②). (See Fig. 8.)
3. Remove the motor in the direction of the arrow. (See Fig. 9.)
4. Remove the coil P.C.B. from the motor.
(See Fig. 10.)
5. Remove the belt from the motor.
(See Fig. 10.)

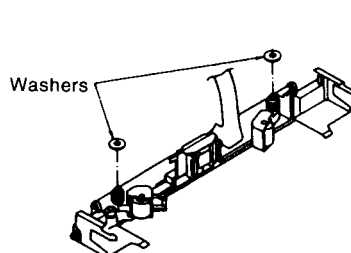


Fig. 6

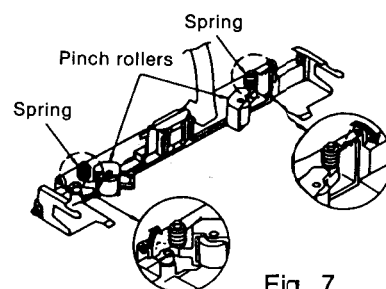


Fig. 7

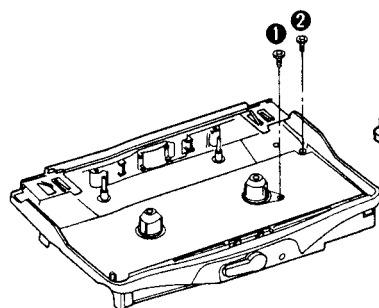


Fig. 8

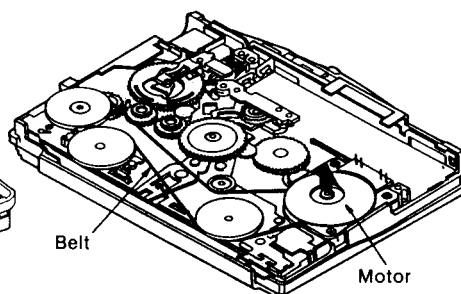


Fig. 9

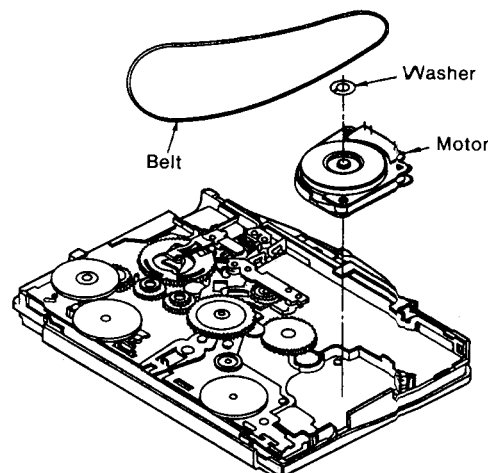


Fig. 10

- When install the belt to motor, push up the motor by insert the non-magnetic material sheet between bottom of the motor and the chassis, and install the belt between top of the motor and the coil P.C.B. (See Fig. 11, 12)

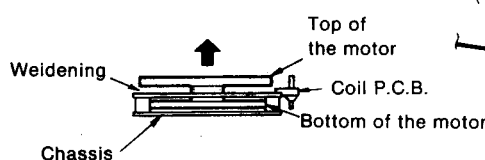


Fig. 11

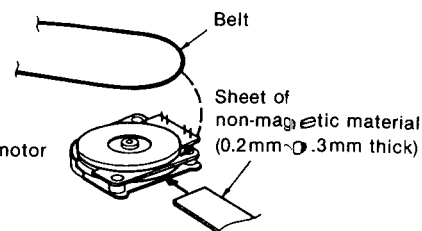


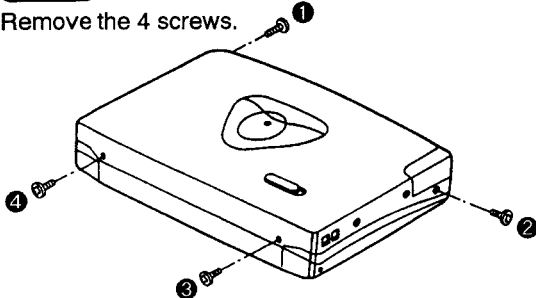
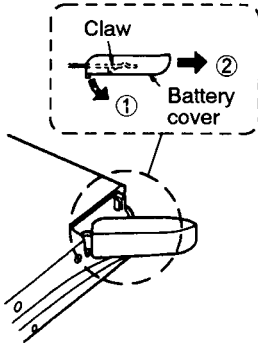
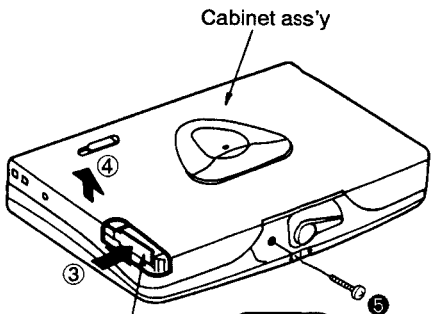
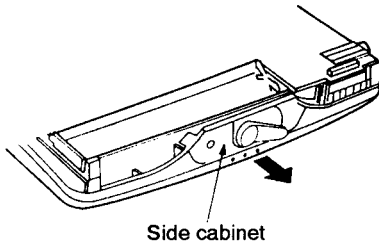
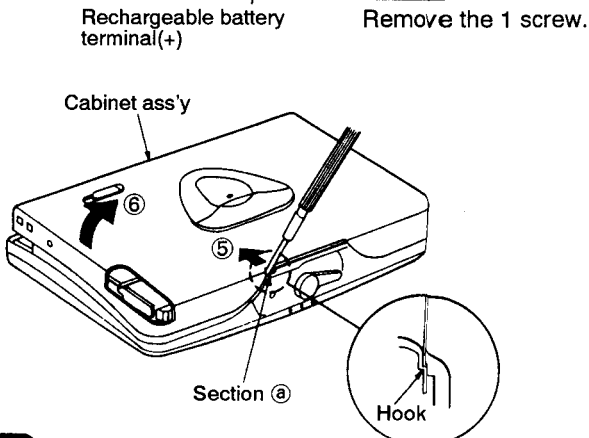
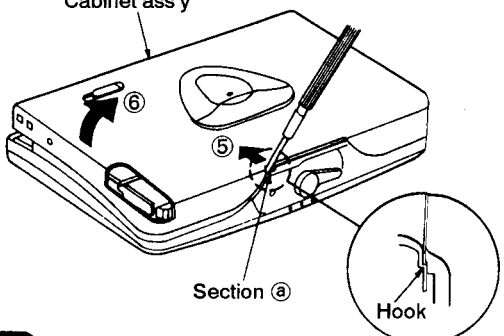

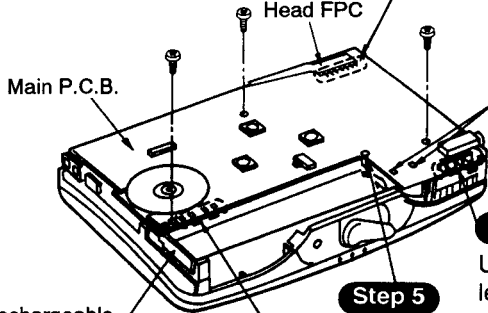
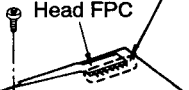
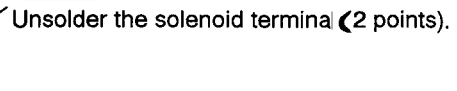
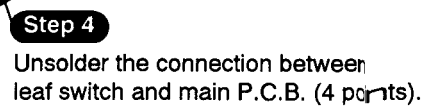
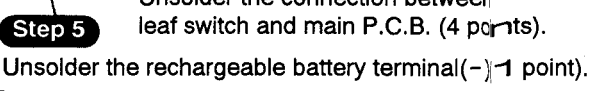
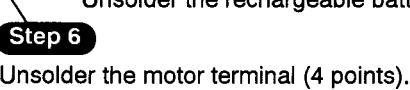
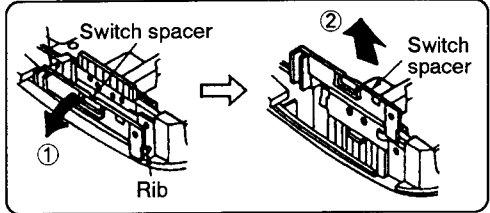
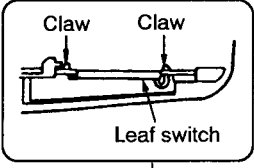
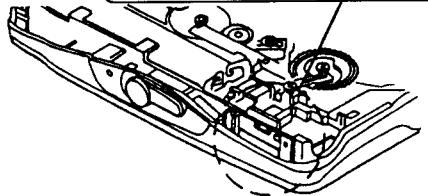
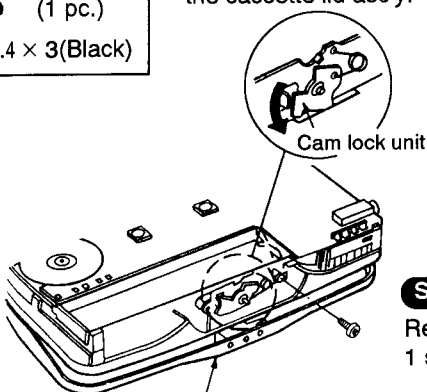
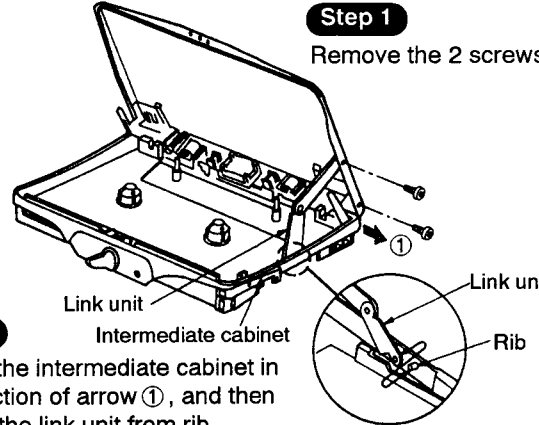
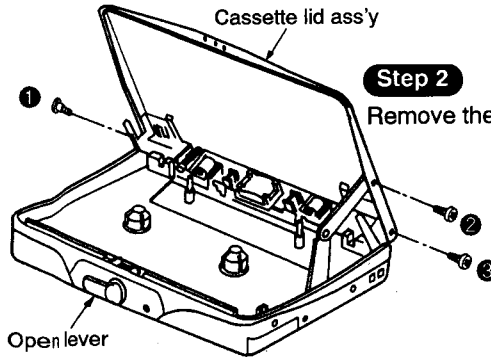
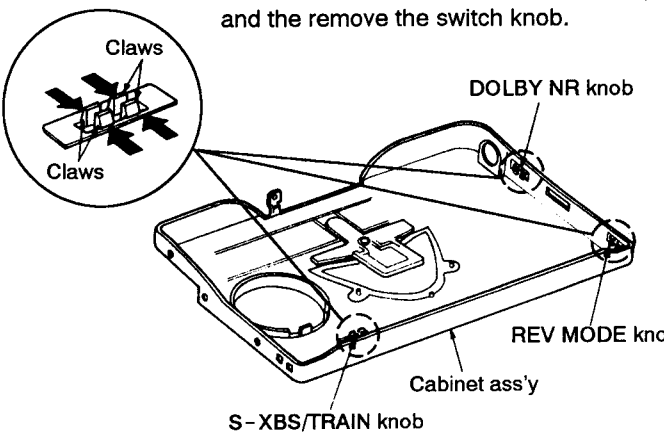
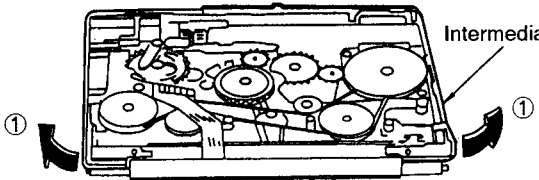
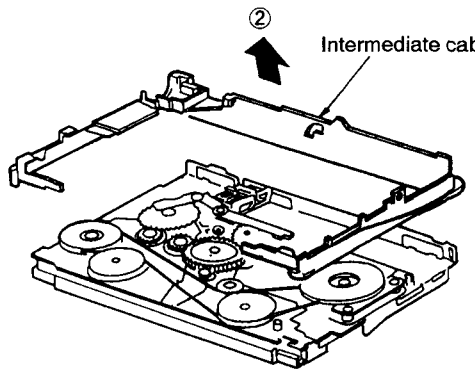
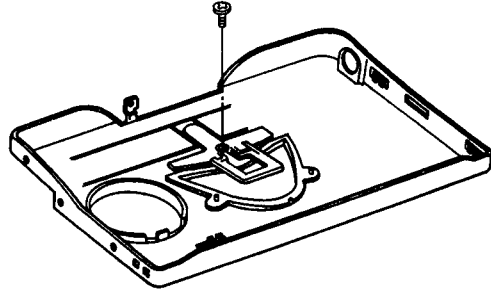
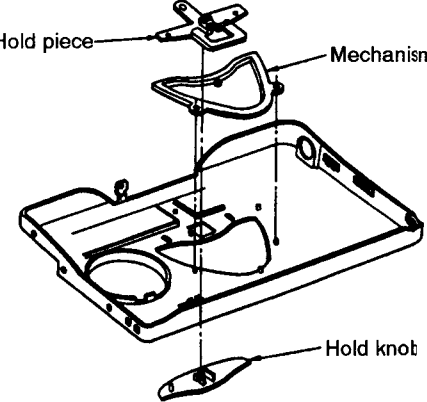


Fig. 12

DISASSEMBLY INSTRUCTIONS

Ref.No. 1	Removal of the cabinet ass'y	<div data-bbox="346 338 633 483">  (4 pcs.) ① ~ ④ Screw 1.4 × 3 (Black)  (1 pcs.) ⑤ Tapping screw 1.4 × 5 </div> <div data-bbox="655 338 1094 465"> Step 2 Disengage battery cover in the direction of arrow ①, and then remove the battery cover in the direction of arrow ②. </div> <div data-bbox="1116 338 1533 495"> Step 4 Pushing the rechargeable battery terminal(+) in the direction of arrow ③, lift the cabinet ass'y in the direction of arrow ④. </div>	
Procedure 1	<div data-bbox="174 483 711 815"> Step 1 Remove the 4 screws.  </div>	<div data-bbox="774 472 1031 815">  </div> <div data-bbox="1072 501 1502 815">  </div>	
Ref.No. 2	Removal of the side cabinet	<div data-bbox="326 1025 671 1375"> Step 1 Remove the side cabinet in the direction of arrow.  </div> <div data-bbox="947 846 1533 1285"> Step 3 Remove the 1 screw.  </div>	
Procedure 1 → 2		<div data-bbox="884 1279 1495 1406"> Step 5 Insert the minus screwdriver into the section ⑧, and then remove the cabinet ass'y in the direction of arrow ⑥ with pushing the hook in the direction of arrow ⑤.  </div>	
Ref.No. 3	Removal of the main P.C.B.	<div data-bbox="1339 1473 1511 1563">  (3 pcs.) Screw 1.4 × 3 </div> <div data-bbox="545 1532 1495 2069"> Step 1 Remove the 3 screws.  </div> <div data-bbox="868 1532 1229 1599"> Step 2 Unsolder the head FPC (7 points).  </div> <div data-bbox="1041 1688 1495 1767"> Step 3 Unsolder the solenoid terminal (2 points).  </div> <div data-bbox="1009 1845 1433 1957"> Step 4 Unsolder the connection between leaf switch and main P.C.B. (4 points).  </div> <div data-bbox="884 1912 1480 2002"> Step 5 Unsolder the rechargeable battery terminal(-) (1 point).  </div> <div data-bbox="805 1980 1213 2069"> Step 6 Unsolder the motor terminal (4 points).  </div>	
Procedure 1 → 3	<div data-bbox="163 1991 758 2080"> Note: <ul style="list-style-type: none"> When the main P.C.B. is removed, the rechargeable battery terminal(+) will also be removed. </div>		

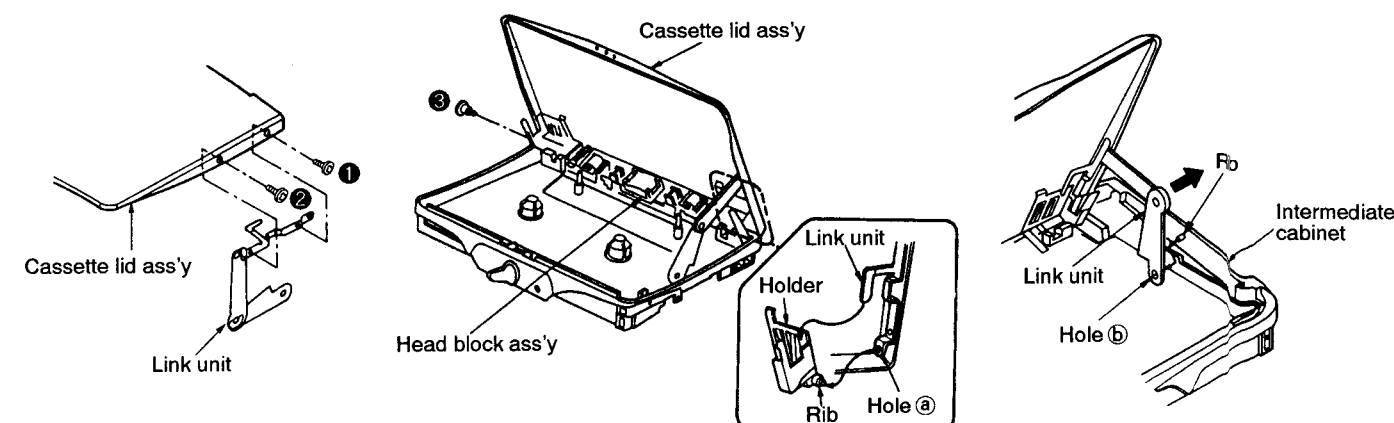
Ref.No. 4	Removal of the leaf switch (Tape detect / tape selector)	<p>Step 1 Pull the switch spacer in the direction of arrow ① to release the rib, and then remove the switch spacer in the direction of arrow ②.</p>  <p>Step 2 Release the 2 claws of leaf switch, and then remove the leaf switch.</p> <p>Upper view</p>  	
Procedure 1 → 3 → 4			
Ref.No. 5	Removal of the cam lock unit	Ref.No. 6	Removal of the link unit
Procedure 1 → 2 → 5	<p>Step 1 Push the cam lock unit in the direction of arrow, and then open the cassette lid ass'y.</p>  <p>Step 2 Remove the 1 screw.</p>	<p>Procedure 1 → 6</p> <p>(2 pcs.) Screw 1.4 × 1.4 (Black)</p> <p>Step 1 Remove the 2 screws.</p>  <p>Step 2 Spread the intermediate cabinet in the direction of arrow ①, and then remove the link unit from rib.</p>	
Ref.No. 7	Removal of the cassette lid ass'y	Ref.No. 8	Removal of the switch knob(DOLBY NR/REV MODE/S-XBS/TRAIN)
Procedure 7	<p>Step 1 Push the open lever to open the cassette lid ass'y.</p>  <p>Step 2 Remove the 3 screws.</p>	<p>Procedure 1 → 8</p> <p>Step 1 Push the claws in the direction of arrow, and then remove the switch knob.</p> 	

Ref.No. 9	Removal of the intermediate cabinet	<p>Step 1 Spread the intermediate cabinet in the direction of arrow ①.</p>  <p>Step 2 Lift up the intermediate cabinet in the direction of arrow ② while spreading the intermediate cabinet.</p> 	
Procedure 1 → 2 → 3 → 4 → 5 → 6 → 7 → 9			
Ref.No. 10	Removal of the hold piece, hold knob, mechanism button		
Procedure 1 → 10	<p>Step 1 Remove the 1 screw.</p>  <p>(1 pc.) Screw 1.4 × 3</p>	<p>Step 2 Remove the screw so that the hold piece, hold knob and mechanism button will be removed.</p> 	

NOTICE FOR ASSEMBLING

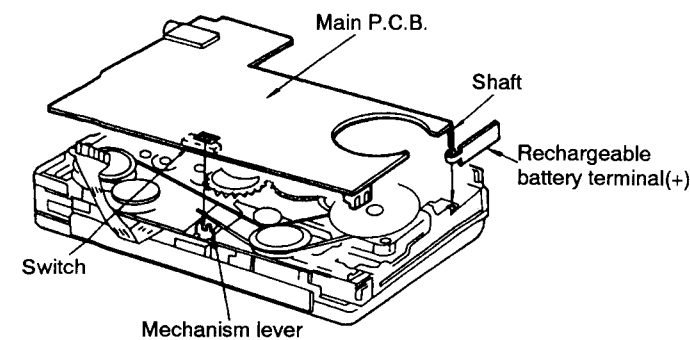
■ Notice assembling the cassette lid ass'y and link unit

1. Attach the link unit to the cassette lid ass'y.
2. Tighten 2 screws(①, ②).
3. Attach the link unit to the holder of head block ass'y, and then align the rib with the hole ③ of link unit.
4. Install the cassette lid ass'y to the head block, and then tighten the screw(③).
5. Slide the intermediate cabinet in the direction of arrow, and then align the hole ④ of link unit with rib of intermediate cabinet.



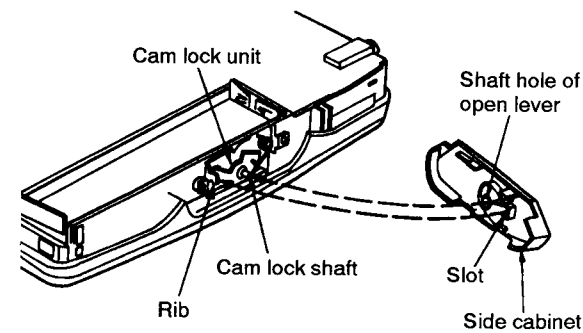
■ Notice for assembling the main P.C.B.

Ensure the boss of switch mates the mechanism lever. Insert the shaft into the rechargeable battery terminal(+), and the install the main P.C.B.

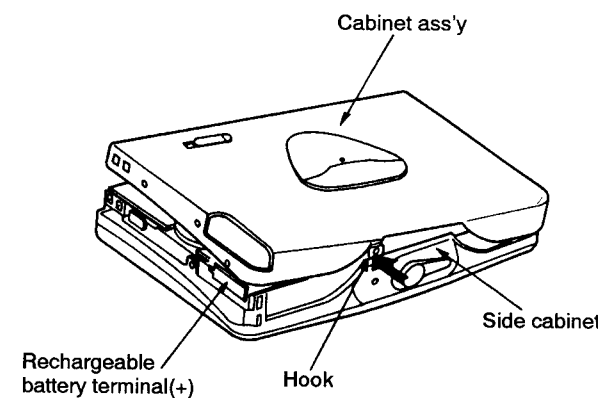
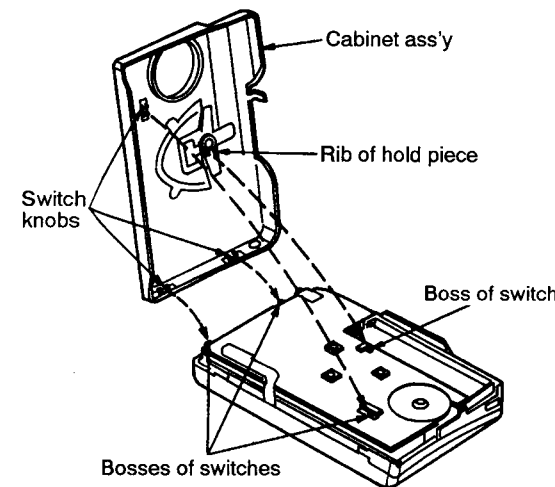


■ Notice for assembling the side cabinet

1. Align the cam lock shaft with the shaft hole of open lever.
2. Align the rib of cam lock unit with the slot of side cabinet.



■ Notice for installing the knobs and assembling the cabinet ass'y



1. Make sure the bosses of the switch are fit in the knobs of the switch when assembling(3 points).
2. Make sure the boss of the switch are fit in the rib of the hold piece(1 point).

Note: Before installing the switch knob, be sure to check the claws for defects that would render the claws unserviceable.
(If a white line like white wax on a claw is found, the claw may be broken when installing the switch knob.)

3. Install the cabinet ass'y with pushing inward the rechargeable battery terminal(+).

Note:

- Push the hook of cabinet ass'y in the direction of arrow, and then put it into the insides of side cabinet.
- Make sure the cabinet ass'y is installed completely and the knobs can be operated after assembled.

■ MEASUREMENTS AND ADJUSTMENTS

● ADJUSTMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ADJUSTMENTS

1. Set volume control to maximum.
2. Set Dolby NR Switch to OFF.
3. Release the hold state. (Refer to page 2)
4. Set power source voltage to 1.5V DC.

● CONTROL POSITIONS AND EQUIPMENT USED

1. Frequency counter

● TAPE SECTION

ITEM	TEST TAPE	MEASUREMENT POINT	ADJUSTMENT POINT	PROCEDURE
Tape speed adjustment	QZZCWAT (3kHz, -10dB)	Connect the frequency counter to Headphones jack (16Ω) (Refer to Fig. 1)	VR301 (Refer to Fig. 2)	Playback the central part of the tape and adjust VR301 so that the tape speed is as follows. Forward: 2990±10Hz Reverse: 2940~3050Hz Make sure that the frequency range in within ±60Hz for between "Forward" and "Reverse" mode.

Note: The playback head is supplied on the head arm assembly. (See the Mechanism parts location on page 18.)
The assembly requires no adjustment.

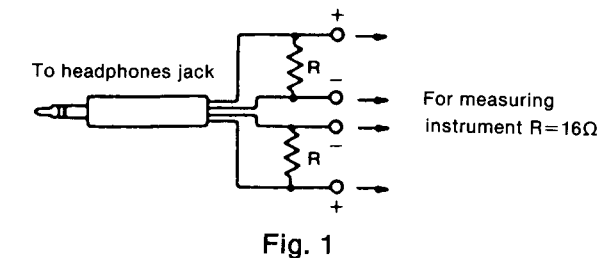


Fig. 1

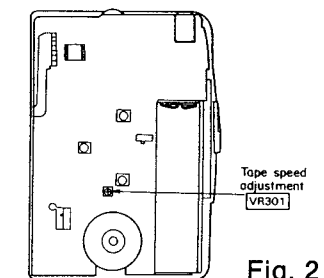


Fig. 2

■ TERMINAL FUNCTION OF IC

● IC6 (TB2004FN006E): MECHANISM CONTROL

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	GND	—	GND terminal	11	PLAY CHECK	I	Inputs the mechanism status detection signal (FWD/REV) At high: FWD At low: REV
2	OSC	I/O	System clock terminal fosc=3.2kHz	12	REV MODE	I	Inputs the reverse mode switching signal. At low: ⤴ mode At high: ⤵ mode
3	CL	I	Clear terminal	13	SP	O	Outputs the motor speed i p signal.
4	LID	I	Detection signal whether the cassette tape is inserted.	14	OP-H	O	Outputs the motor speed i p signal and the mode signal.
5	REM	I	Inputs the remote control signal.	15	CCW	O	Outputs the reversing motor drive control signal.
6	PLAY	I	Inputs the mechanism operation signal (PLAY) At high: PLAY	16	MUTE	O	Outputs the amp. muting i gnal.
7	TPS	I	Inputs the mechanism operation signal (STOP) At high: STOP	17	FF-L	O	Outputs the LED for battery lit drive signal. At low: LED lit (Not used, ⤵ pen.)
8	FF	I	Inputs the mechanism operation signal (FF) At high: FF	18	SOL	O	Outputs the solenoid drive signal.
9	REW	I	Inputs the mechanism operation signal (REW) At high: REW	19	OP-L	O	Outputs the power switching signal.
10	T. END	I	Inputs the signal for the detection of tape rotation. When the pulse signal is input: The current mode remains set as the tape is rotating. No pulse signal: Stops or starts reverse playback as the tape has stopped rotating (ie, reached the end).	20	PEE	O	Outputs the confirming beep when remote control.
				21	REV-L	O	Outputs the LED for operation indicator lit drive signal.
				22	VDD	I	Power supply terminal
				23	CONT	O	Outputs the DC-DC converter drive signal.
				24	VCC	I	Power supply terminal

HOW TO CHECK OPERATIONS DURING DISASSEMBLY AND SERVICING

- Check operations during disassembly following the steps.
 - 1) Set the condition as shown in Fig. 1 in accordance with Disassembly Instructions. (DO NOT remove the solders on the head FPC.)
 - 2) Connect the PCB and motor with the extension cord (RFKZ0002).
 - 3) Solder the shortland with a lead wire and then short-circuit them.
 - Short-circuit the short land ①. (Motor power: ON)
 - Short-circuit the short land ②. (Microcomputer: reset)
 - Short-circuit the short land ③. (Power: ON)
 - Short-circuit the short land ④. (Tape in/out SW: ON)
- Note:** See next page for the points to be short-circuited.
- 4) Connect the rechargeable battery (+) terminal and the rechargeable battery (-) terminal foil to the power source (DC 1.5V) with a lead wire. (Fig. 1)
- 5) Connect the rechargeable battery (-) terminal foil and the rechargeable battery (-) terminal with a lead wire (mechanism earth).
- 6) Manually operate the plunger arm when checking the PLAY/STOP operation.
 - Manually pulling the plunger arm once sets the FWD mode; twice, REV; and, three times, STOP.

Notes:

- Operate the plunger arm manually. Even if the operation buttons are pressed, the plunger will not be actuated.
- Even if the mechanism unit is switched to the FWD mode in Step 6, the head change-over switch (IC1) will remain in the REV position, so set the REV mode to check the audio.
- Before checking the operation problems and adjustments, be sure to release the hold state. (Refer to page 2)
- After checking, unsolder the short land ①, ②, ③ and ④.

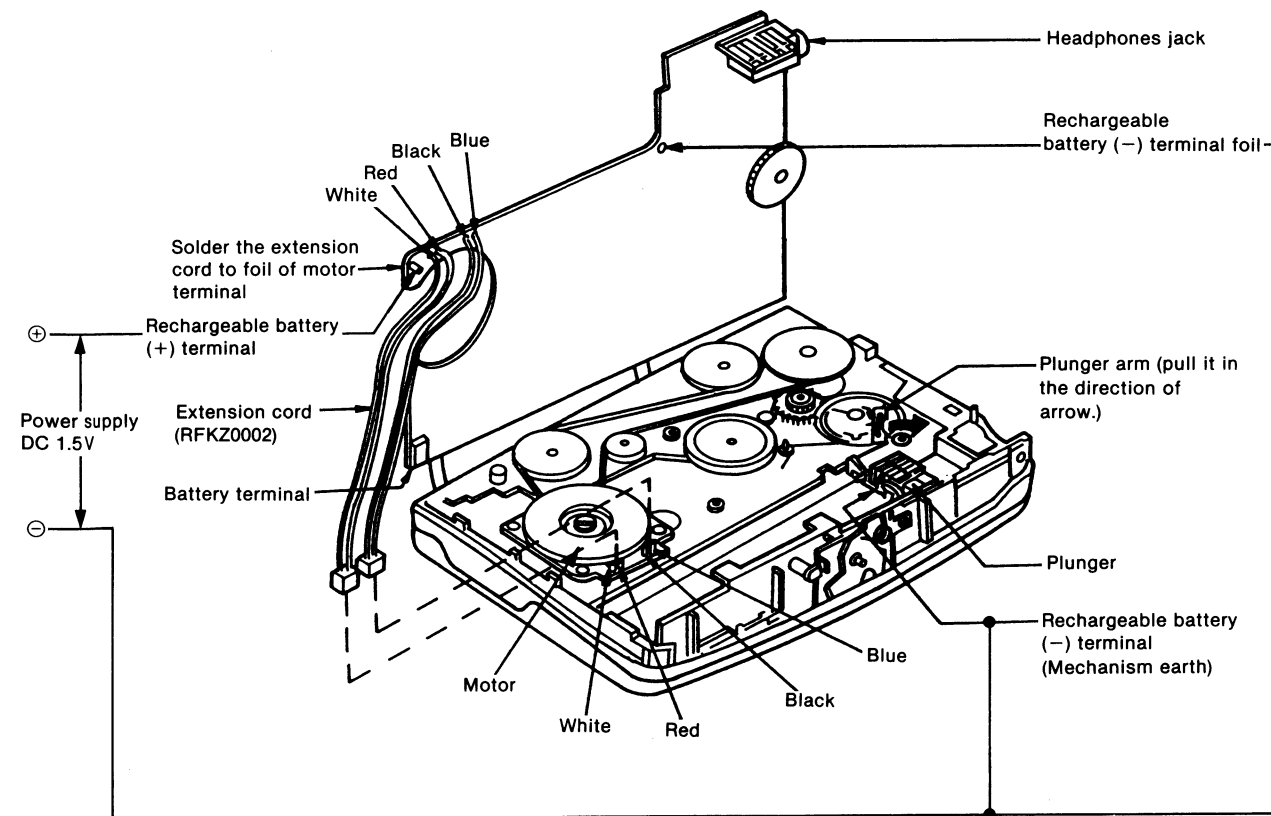
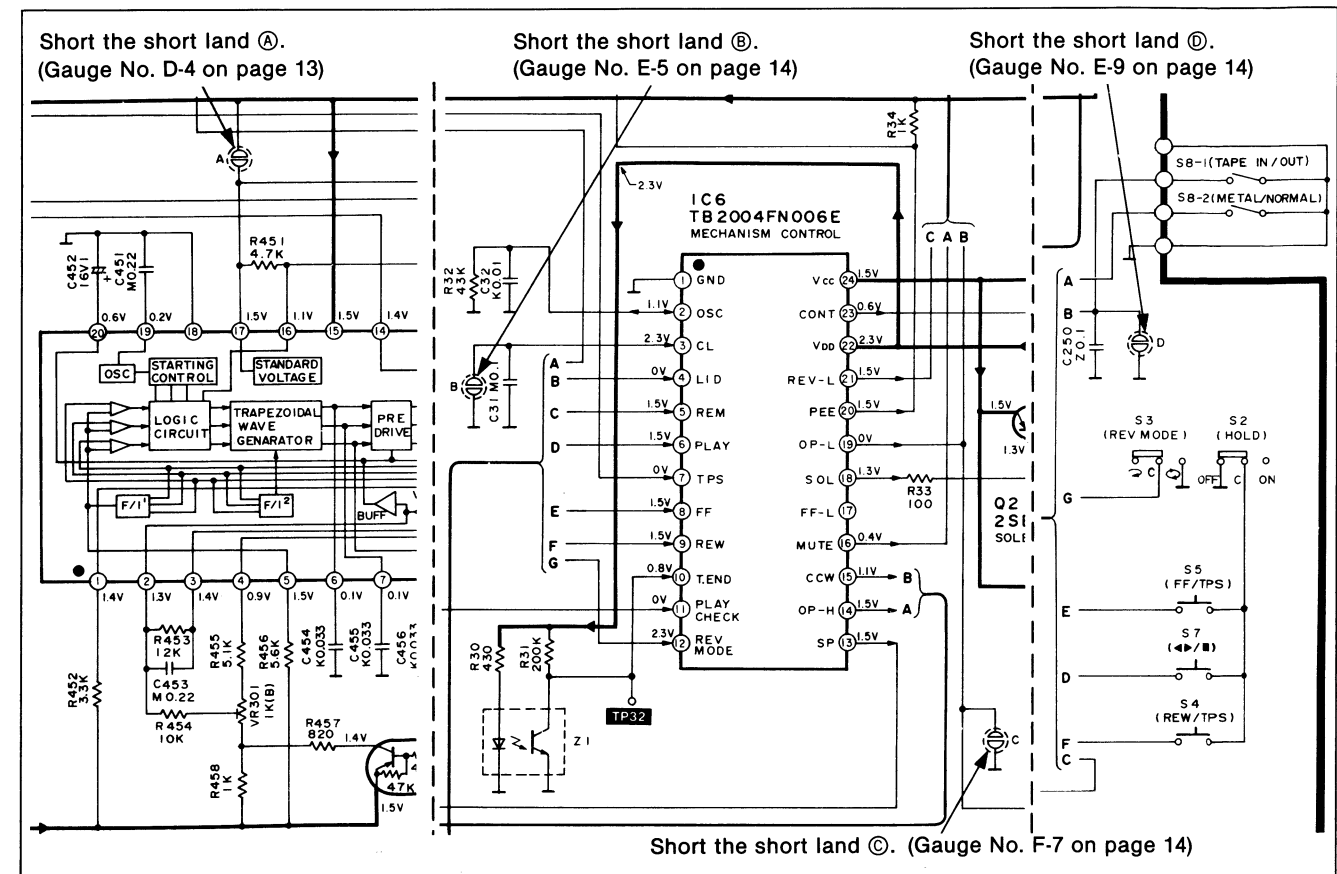


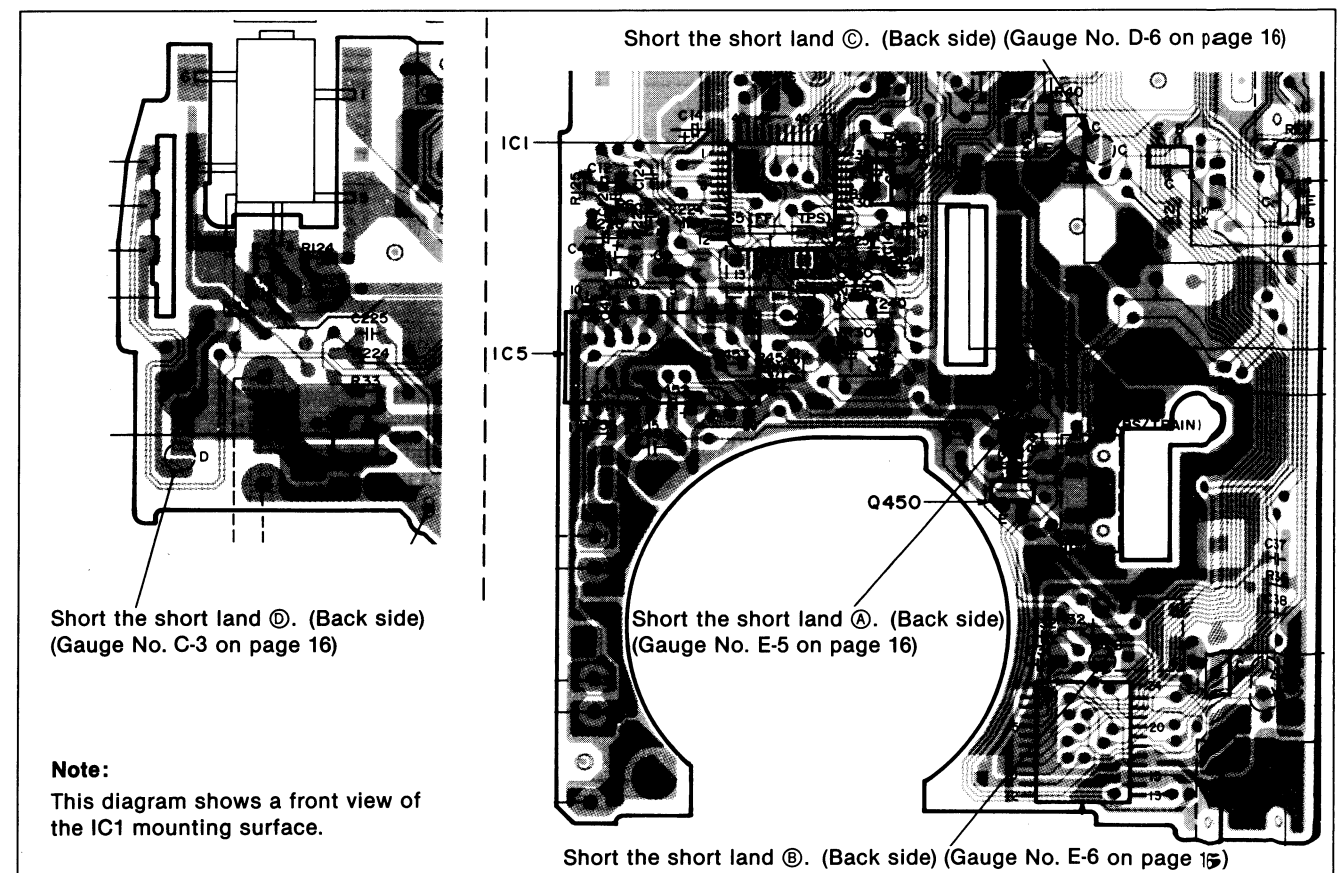
Fig. 1

• Short-circuit points

SCHEMATIC DIAGRAM (A MAIN CIRCUIT)



PRINTED CIRCUIT BOARD (A MAIN P.C.B.)

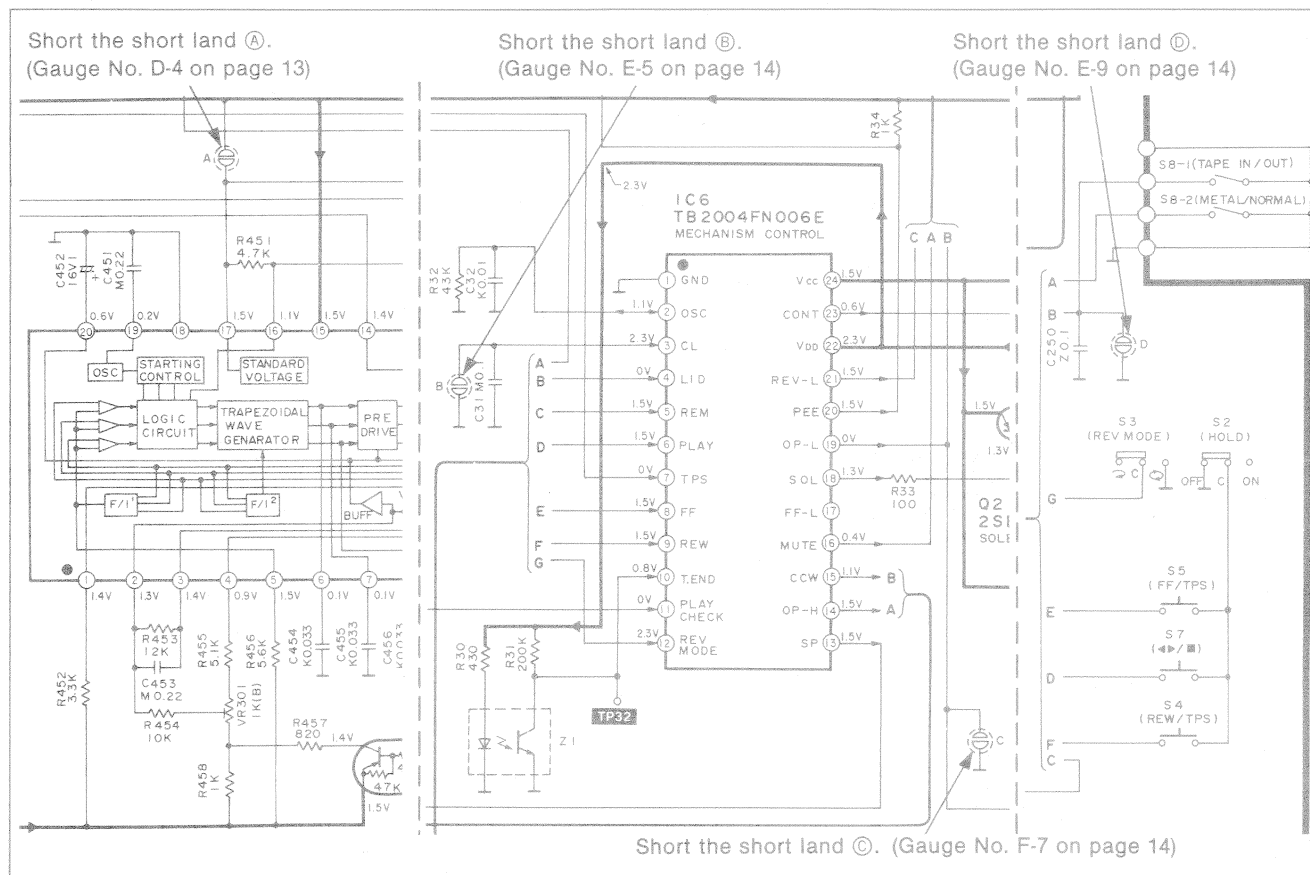


Note:

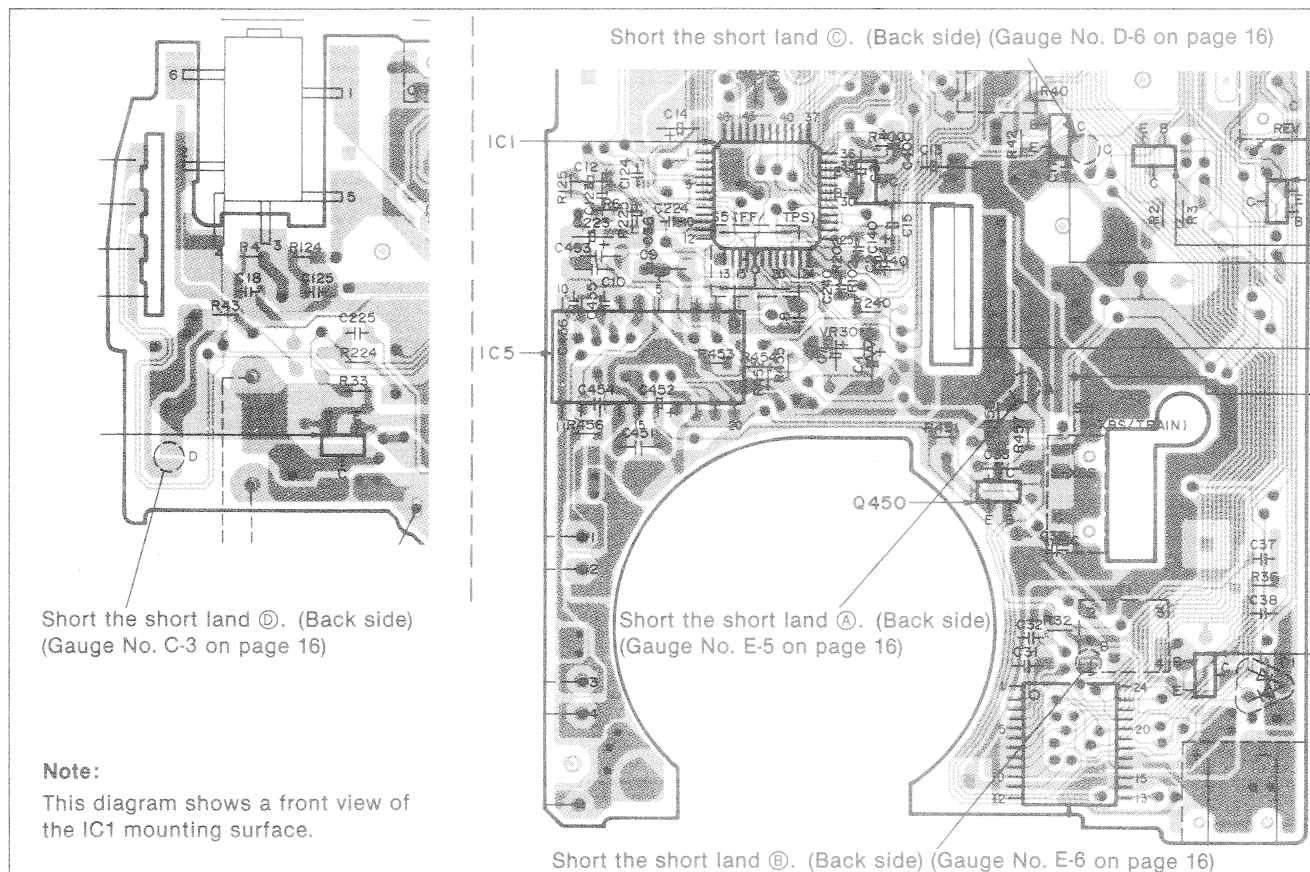
This diagram shows a front view of the IC1 mounting surface.

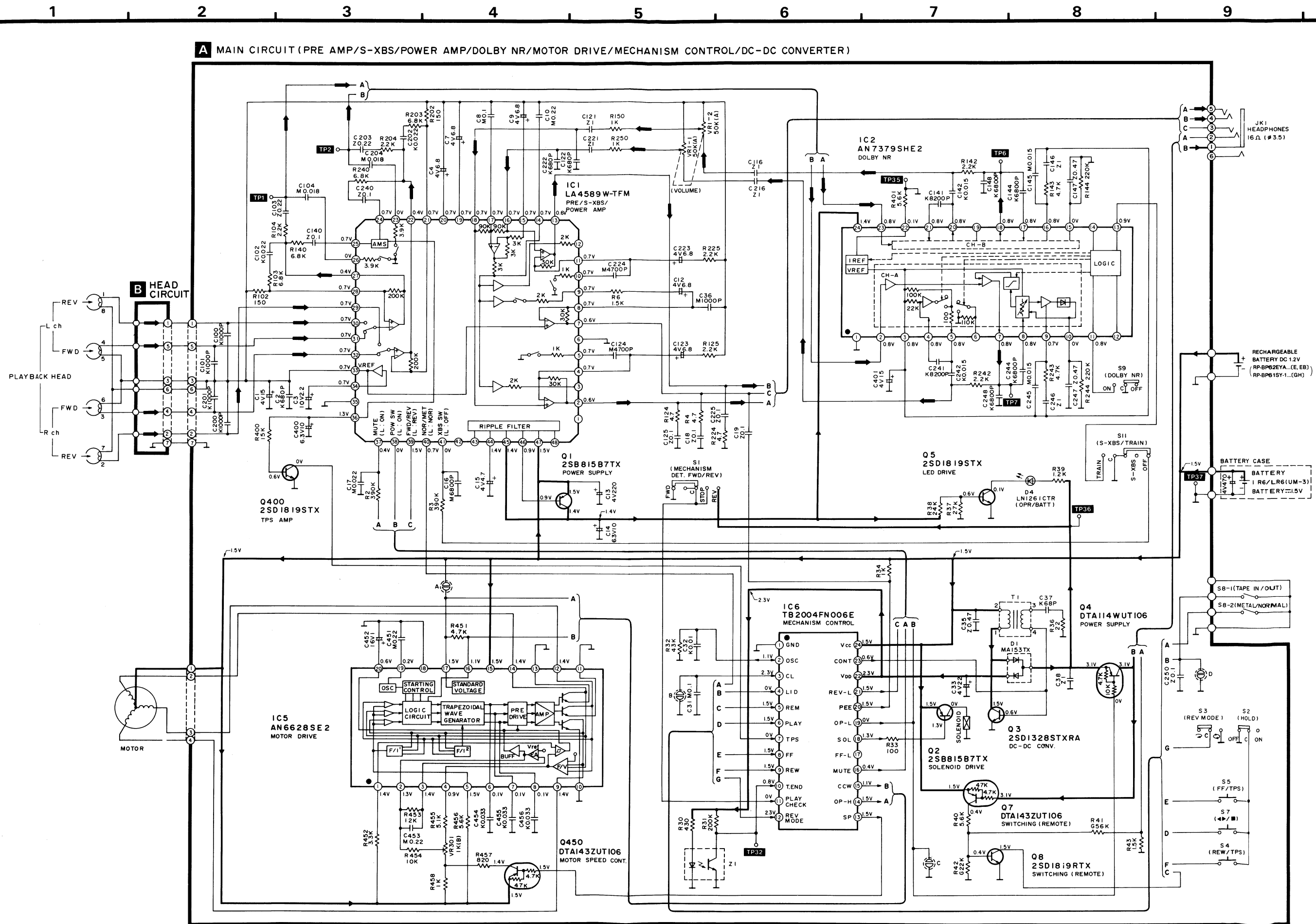
- **Short-circuit points**

SCHEMATIC DIAGRAM (A MAIN CIRCUIT)



PRINTED CIRCUIT BOARD (A MAIN P.C.B.)





SCHEMATIC DIAGRAM

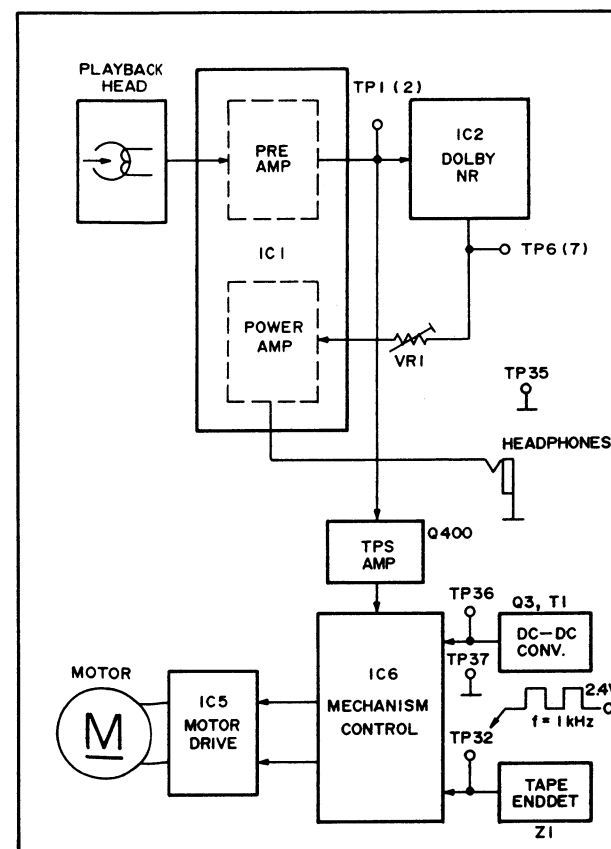
(See parts list on pages 20, 21.)

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

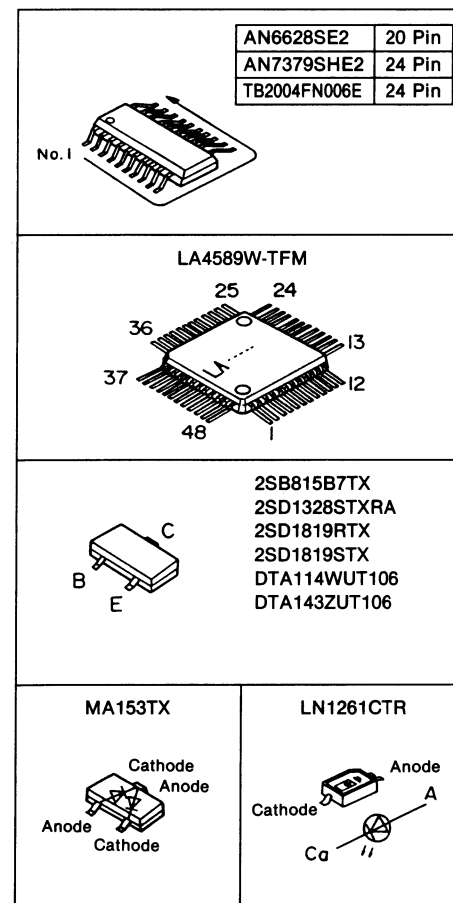
- **S1** : FWD/REV switch in "FWD" position.
 - **S2** : Hold (HOLD) switch in "OFF" position.
 - **S3** : Reverse mode selector in "↺" position.
(↺/ON • ↻/OFF)
 - **S4, 5, 7** : Operation switches.
(S4: REW, S5: FF, S7: PLAY/STOP)
 - **S8-1** : Tape detector (OPEN/CLOSE) switch in "OPEN" position.
 - **S8-2** : Tape selector switch in "OFF (METAL)" position.
(ON: NORMAL, OFF: METAL)
 - **S9** : Dolby noise reduction (DOLBY NR) switch in "OFF" position.
 - **S11** : Tone (S-XBS, TRAIN) switch in "OFF" position.
(OFF ↔ S-XBS ↔ TRAIN)
 - **VR1** : Volume adjustment.
 - **VR301** : Tape speed adjustment.
 - DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.
No mark...Playback.
- Volume VR $\left[\begin{array}{l} \text{MAX} \dots 180\text{mA} \\ \text{MIN} \dots 160\text{mA} \end{array} \right]$
- Signal line
 : +B line, : Playback signal.

BLOCK DIAGRAM



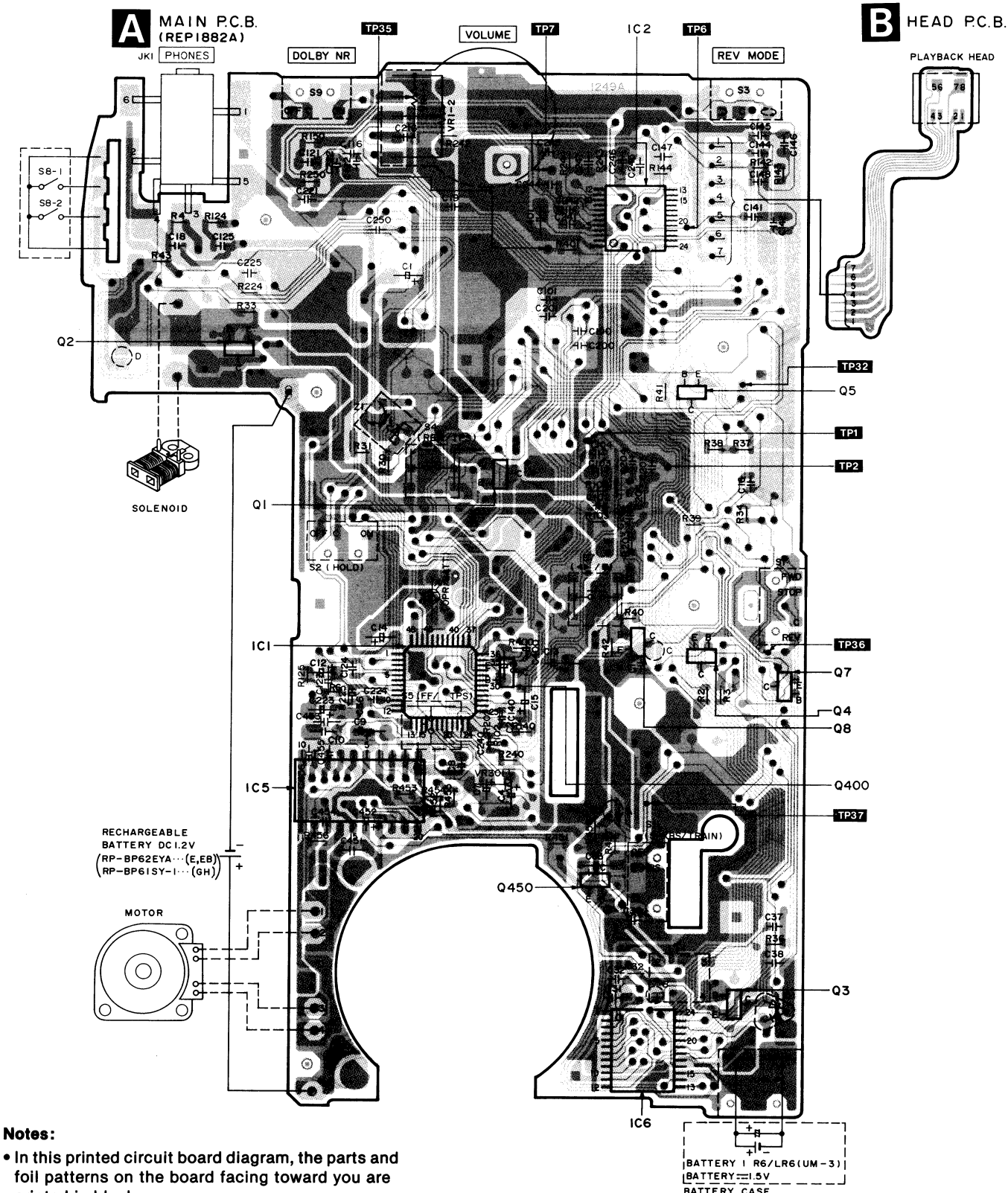
PRINTED CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

• Terminal guide of IC's, transistors and diodes



• CHECK POINT OF SIGNAL

CHECK ITEM		TEST POINT
HEAD → PRE OUTPUT	Lch	TP1
	Rch	TP2
	GND	TP35
PRE OUTPUT → DOLBY NR OUTPUT	Lch	TP6
	Rch	TP7
	GND	TP35
DOLBY NR OUTPUT → VR INPUT	Lch	VR TERMINAL
	Rch	VR TERMINAL
	COM	VR TERMINAL
VR INPUT → VR OUTPUT	Lch	VR TERMINAL
	Rch	VR TERMINAL
	COM	VR TERMINAL
POWER AMP OUTPUT → HEADPHONE OUTPUT	Lch	HP TERMINAL
	Rch	HP TERMINAL
	COM	HP TERMINAL
DC-DC CONVERTER (BOOSTER)	2.4V OUTPUT	TP36
	GND	TP37
PHOTO COUPLER (END)	PULSE OUTPUT	TP32



SCHEMATIC DIAGRAM

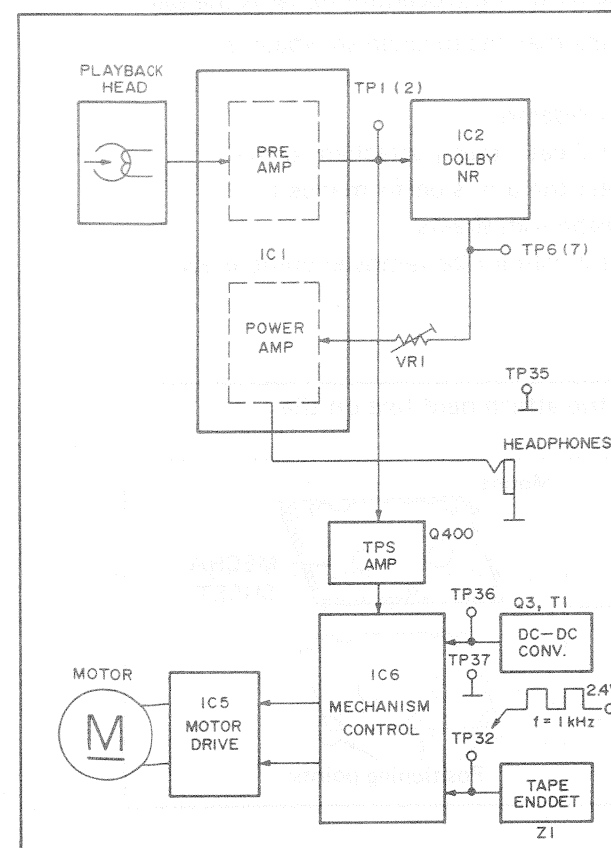
(See parts list on pages 20, 21.)

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

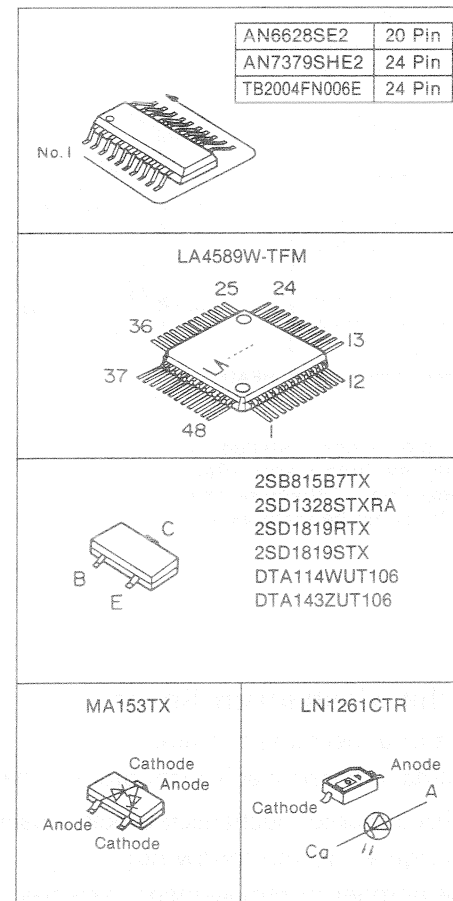
- **S1** : FWD/REV switch in "FWD" position.
 - **S2** : Hold (HOLD) switch in "OFF" position.
 - **S3** : Reverse mode selector in "↺" position.
(↺/ON • ↻/OFF)
 - **S4, 5, 7** : Operation selector switches.
(S4: REW, S5: FF, S7: PLAY/STOP)
 - **S8-1** : Tape detector (OPEN/CLOSE) switch in "OPEN" position.
 - **S8-2** : Tape selector switch in "OFF (METAL)" position.
(ON: NORMAL, OFF: METAL)
 - **S9** : Dolby noise reduction (DOLBY NR) switch in "OFF" position.
 - **S11** : Tone (S-XBS, TRAIN) switch in "OFF" position.
(OFF → S-XBS → TRAIN)
 - **VR1** : Volume adjustment.
 - **VR301** : Tape speed adjustment.
 - DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.
No mark...Playback.
- Volume VR $\left[\begin{array}{l} \text{MAX...180mA} \\ \text{MIN...160mA} \end{array} \right]$
- Signal line
 : +B line, : Playback signal.

BLOCK DIAGRAM



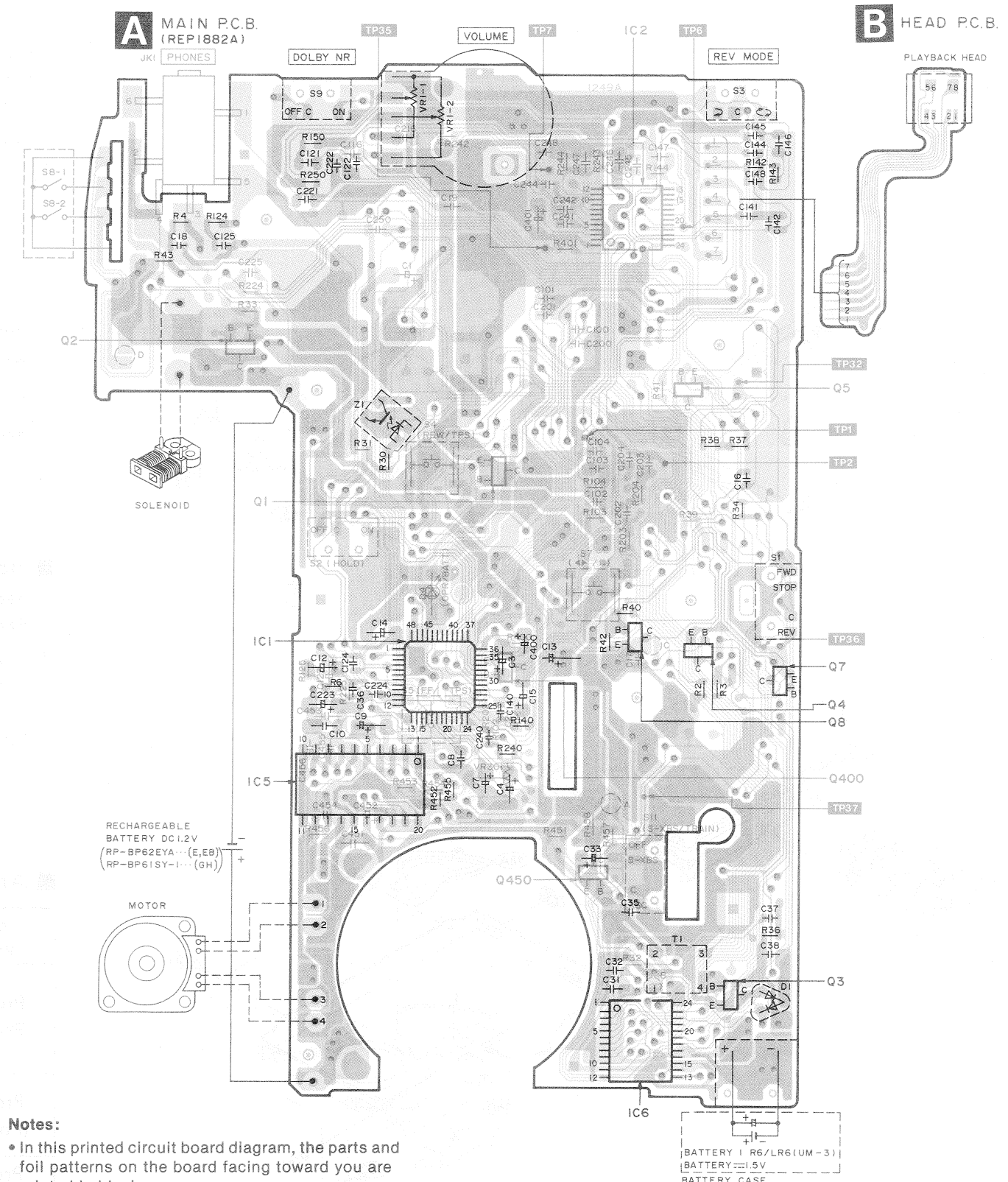
PRINTED CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

• Terminal guide of IC's, transistors and diodes

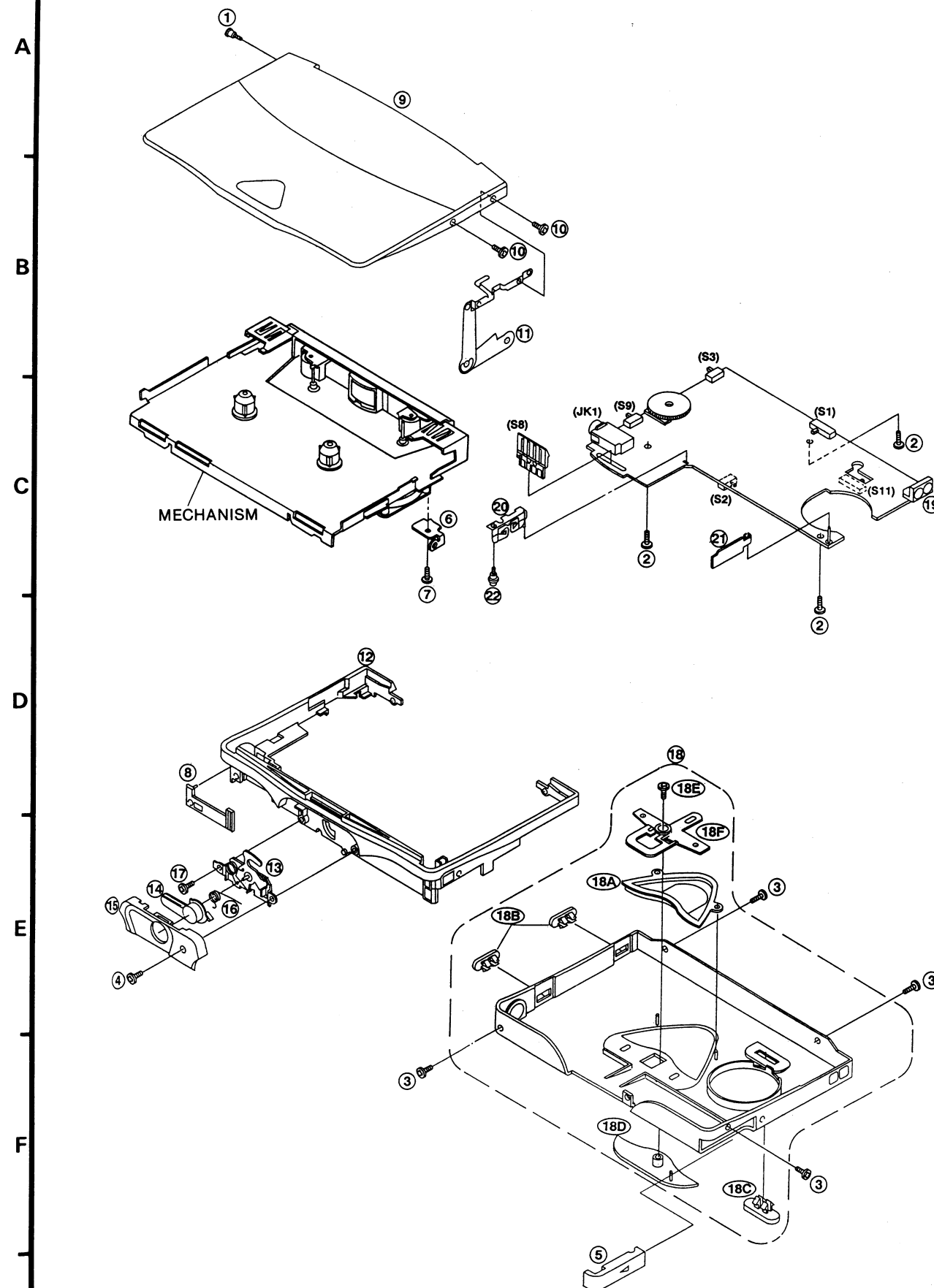


• CHECK POINT OF SIGNAL

CHECK ITEM	TEST POINT
HEAD → PRE OUTPUT	Lch TP1
	Rch TP2
	GND TP35
PRE OUTPUT → DOLBY NR OUTPUT	Lch TP6
	Rch TP7
	GND TP35
DOLBY NR OUTPUT → VR INPUT	Lch VR TERMINAL
	Rch VR TERMINAL
	COM VR TERMINAL
VR INPUT → VR OUTPUT	Lch VR TERMINAL
	Rch VR TERMINAL
	COM VR TERMINAL
POWER AMP OUTPUT → HEADPHONE OUTPUT	Lch HP TERMINAL
	Rch HP TERMINAL
	COM HP TERMINAL
DC-DC CONVERTER (BOOSTER)	2.4V OUTPUT TP36
	GND TP37
PHOTO COUPLER (END)	PULSE OUTPUT TP32



CABINET PARTS LOCATION



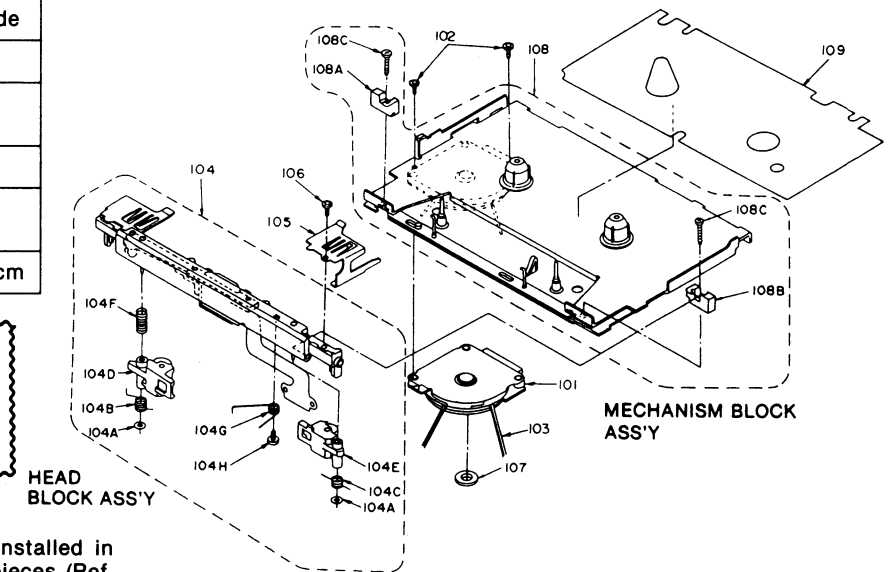
MECHANISM PARTS LOCATION

	FWD & REV mode
Wow and flutter	0.3% (WRMS)
Pressure of pinch roller	120±20g
Take-up tension	More than 60g
Playback torque	20 ⁺¹⁵ ₋₅ g·cm
FF/REW torque	More than 60g·cm

The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore, they are not supplied separately except parts indicated with Ref. No.

Note:

* Exchange the original hold pieces installed in the mechanism with the new hold pieces (Ref. No. 108A, 108B) when repairing. Otherwise, the head block (Ref. No. 104) cannot be installed.



How to apply the Mechanism Sheet

- Replacing/Repairing of a mechanism block.
Replace or repair using a shared mechanism block.(The replacing/repairing procedure remains the same.)
- If after repairing with a shared mechanism block, a user complains that the mechanism sheet is different from the original, do the following:
 - Explain that the number of replacement parts has been consolidated.
 - Attach an original mechanism sheet covering the mechanism sheet already attached to the shared mechanism block. (Doubling, doubling does not affect the unit's performance.)
 - Never attach another mechanism sheet to the doubled mechanism sheets.
 - Never remove the already attached sheet. Adhesive material cannot be removed completely.
 - Position the sheet carefully, when attaching it.

Attaching instructions

You can attach the mechanism sheet smoothly if you position the attachment line on the side where the head is to be installed.

Procedure 1: (Preparation)	Peel off the sheet from mount.	
Procedure 2: (Positioning)	Fit the encircled marks of an original sheet with those of sheet already attached.	
Procedure 3: (Attachment)	Attach the sheet.	

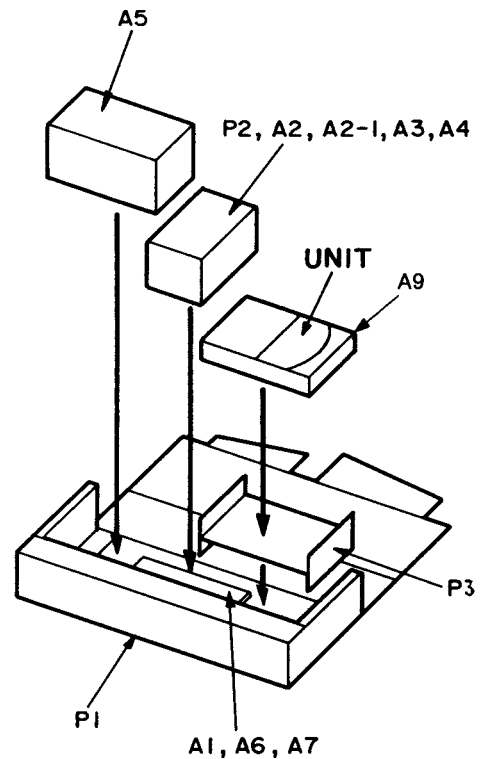
REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RHD14036-K	SCREW	
2	RHE51192A	SCREW	
3	RHQ0002-K	SCREW	
4	RHQ0028-S	SCREW	
5	RKK0052-K1	BATTERY COVER	
6	RHN20005	NUT	
7	RHQ0029-K	SCREW	
8	RMQ0355	SWITCH SPACER	
9	RFKLS30-K	CASSETTE LID ASS'Y	
10	RHQ0033-K	SCREW	
11	RXM0042	LINK UNIT	
12	RKQ0132-S	INTERMEDIATE CABINET	
13	RXQ0236	CAM LOCK UNIT	
14	RGW0173-S	OPEN LEVER	
15	RKQ0133-S	SIDE CABINET	
16	RMB0300	AUTO RETURN SPRING	
17	XQN14-CJ3FZ	SCREW	
18	RYK0448-K	CABINET ASS'Y	
18A	RGU1037-S	MECHANISM BUTTON	
18B	RGV0106-K	MODE/NR KNOB	
18C	RGV0110-K	S-XBS/TRAIN KNOB	
18D	RGV0128-S	HOLD KNOB	
18E	RHE51192A	SCREW	
18F	RMRO764-K	HOLD PIECE	
19	RJH9206	CONNECTION TERMINAL	
20	RJC99004-2	RECHARGEABLE BATT. TER(-)	
21	RJC99003-3	RECHARGEABLE BATT. TER(+)	
22	RHQ0013-1	SCREW	
		MECHANISM	
101	HPX-24NB1AT	MOTOR	
102	XQS14-A18FZ	SCREW	
103	RDV0016	BELT	
104	RXQ0277	HEAD BLOCK ASS'Y	
104A	RNW1012A	WASHER	
104B	RME0125	PINCH ROLLER SPRING(L)	
104C	RME0005	PINCH ROLLER SPRING(R)	
104D	RXL0004-1	PINCH ROLLER ARM(L)	
104E	RXL0005	PINCH ROLLER ARM(R)	
104F	RMB0245	HEAD ARM SPRING(L)	
104G	RME0114	HEAD ARM SPRING(R)	
104H	RHD14032-1	SCREW	
105	RMA0023	HOLDER(R)	
106	XQN14-A3	SCREW	
107	RHW42002-2	WASHER	
108	RFKRS35N1	MECHANISM BLOCK ASS'Y	
108A	RMQ0292	HOLD PIECE(L)	
108B	RMQ0293	HOLD PIECE(R)	

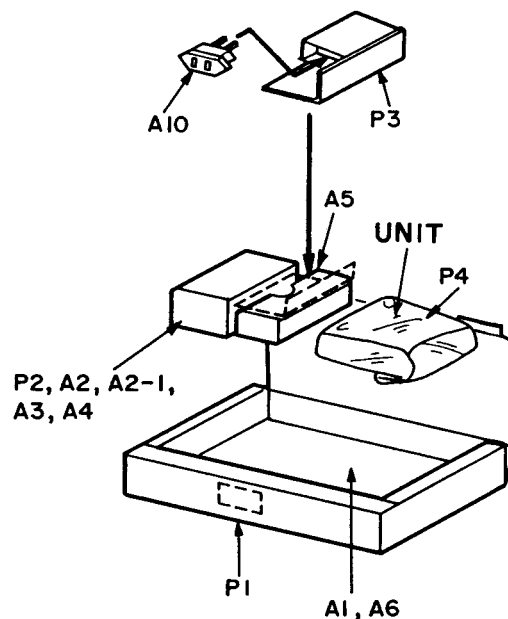
Ref. No.	Part No.	Part Name & Description	Remarks
108C	RHD14031	SCREW	
109	RKNO077-K	MECHANISM SHEET	

PACKAGING

- For (E, EB) areas.



- For (GH) area.



RESISTORS AND CAPACITORS

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
 * Resistance values are in ohms, unless specified otherwise, 1 K=1,000 (OHM), 1 M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS			CAPACITORS	C222	ECUV1H681KBV	50V 680P
						C223	ECSTOGY685RR	4V 6.8U
						C224	ECUV1H472MBV	50V 4700P
R2, 3	ERJ3GEYJ394V	1/16W 390K	C1	ECSTOGY156RR	4V 15U	C225	ECUV1C1042FV	16V 0.1U
R4	ERJ3GEYJ4R7V	1/16W 4.7	C2	ECUV1H681KBV	50V 680P	C240	ECUV1C1042FV	16V 0.1U
R6	ERJ3GEYJ152V	1/16W 1.5K	C3	ECST1AY225RR	10V 2.2U	C241	ECUV1E822KBV	25V 8200P
R30	ERJ3GEYJ431V	1/16W 430	C4	ECSTOGY685RR	4V 6.8U	C242	ECUV1E153KBV	25V 0.015U
R31	ERJ3GEYJ204V	1/16W 200K	C7	ECSTOGY685RR	4V 6.8U	C244	ECUV1H682KBV	50V 6800P
R32	ERJ3GEYJ433V	1/16W 43K	C8	ECUV1E104MBN	25V 0.1U	C245	ECUV1E153MBV	25V 0.015U
R33	ERJ3GEYJ101V	1/16W 100	C9	ECSTOGY685RR	4V 6.8U	C246	ECUV1C1052FN	16V 1U
R34	ERJ3GEYJ102V	1/16W 1K	C10	ECUV1C224MBM	16V 0.22U	C247	ECUV1C4742FN	16V 0.47U
R36	ERJ3GEYJ220V	1/16W 22	C12	ECSTOGY685RR	4V 6.8U	C248	ECUV1H682KBV	50V 6800P
R37	ERJ3GEYJ273V	1/16W 27K	C13	ECA0DV221FZ	4V 220U	C250	ECUV1C1042FN	16V 0.1U
R38	ERJ3GEYJ243V	1/16W 24K	C14	ECSTOJY106RR	6.3V 10U	C400	ECSTOJY106RR	6.3V 10U
R39	ERJ3GEYJ122V	1/16W 1.2K	C15	ECSTOGY475RR	4V 4.7U	C401	ECSTOGY156RR	4V 15U
R40	ERJ3GEYJ562V	1/16W 5.6K	C16	ECUV1H682MBV	50V 6800P	C451	ECUV1C224MBM	16V 0.22U
R41	ERJ3GEYJ563V	1/16W 56K	C17	ECUV1C223MBV	16V 0.022U	C452	ECST1CY105RR	16V 1U
R42	ERJ3GEYJ223V	1/16W 22K	C18, 19	ECUV1C1042FV	16V 0.1U	C453	ECUV1C224MBM	16V 0.22U
R43	ERJ3GEYJ152V	1/16W 1.5K	C31	ECUV1E104MBN	25V 0.1U	C454-456	ECUV1C333KBN	16V 0.033U
R102	ERJ3GEYJ151V	1/16W 150	C32	ECUV1E103KBV	25V 0.01U			
R103	ERJ3GEYJ682V	1/16W 6.8K	C33	ECSTOGY226RR	4V 22U			
R104	ERJ3GEYJ222V	1/16W 2.2K	C35	ECUV1C4742FN	16V 0.47U			
R124	ERJ3GEYJ4R7V	1/16W 4.7	C36	ECUV1H102MBV	50V 1000P			
R125	ERJ3GEYJ222V	1/16W 2.2K	C37	ECUV1H680KCV	50V 68P			
R140	ERJ3GEYJ682V	1/16W 6.8K	C38	ECUV1C1052FN	16V 1U			
R142	ERJ3GEYJ222V	1/16W 2.2K	C100, 101	ECUV1H102KBV	50V 1000P			
R143	ERJ3GEYJ472V	1/16W 4.7K	C102	ECUV1C223KBV	16V 0.022U			
R144	ERJ3GEYJ224V	1/16W 220K	C103	ECUV1C2242FN	16V 0.22U			
R150	ERJ3GEYJ102V	1/16W 1K	C104	ECUV1C183MBV	16V 0.018U			
R202	ERJ3GEYJ151V	1/16W 150	C116	ECUV1C1052FN	16V 1U			
R203	ERJ3GEYJ682V	1/16W 6.8K	C121	ECUV1C1052FN	16V 1U			
R204	ERJ3GEYJ222V	1/16W 2.2K	C122	ECUV1H681KBV	50V 680P			
R224	ERJ3GEYJ4R7V	1/16W 4.7	C123	ECSTOGY685RR	4V 6.8U			
R225	ERJ3GEYJ222V	1/16W 2.2K	C124	ECUV1H472MBV	50V 4700P			
R240	ERJ3GEYJ682V	1/16W 6.8K	C125	ECUV1C1042FV	16V 0.1U			
R242	ERJ3GEYJ222V	1/16W 2.2K	C140	ECUV1C1042FV	16V 0.1U			
R243	ERJ3GEYJ472V	1/16W 4.7K	C141	ECUV1E822KBV	25V 8200P			
R244	ERJ3GEYJ224V	1/16W 220K	C142	ECUV1E153KBV	25V 0.015U			
R250	ERJ3GEYJ102V	1/16W 1K	C144	ECUV1H682KBV	50V 6800P			
R400	ERJ3GEYJ153V	1/16W 15K	C145	ECUV1E153MBV	25V 0.015U			
R401	ERJ3GEYJ562V	1/16W 5.6K	C146	ECUV1C1052FN	16V 1U			
R451	ERJ3GEYJ472V	1/16W 4.7K	C147	ECUV1C4742FN	16V 0.47U			
R452	ERJ3GEYJ332V	1/16W 3.3K	C148	ECUV1H682KBV	50V 6800P			
R453	ERJ3GEYJ123V	1/16W 12K	C200, 201	ECUV1H102KBV	50V 1000P			
R454	ERJ3GEYJ103V	1/16W 10K	C202	ECUV1C223KBV	16V 0.022U			
R455	ERJ3GEYJ512V	1/16W 5.1K	C203	ECUV1C2242FN	16V 0.22U			
R456	ERJ3GEYJ562V	1/16W 5.6K	C204	ECUV1C183MBV	16V 0.018U			
R457	ERJ3GEYJ821V	1/16W 820	C216	ECUV1C1052FN	16V 1U			
R458	ERSL30J102U	1/8W 1K	C221	ECUV1C1052FN	16V 1U			

REPLACEMENT PARTS LIST

Notes: *Important safety notice:

 Components identified by \triangle mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)

Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		S11	RSS3A007-A	S-XBS/TRAIN	
						JACK(S)	
IC1	LA4589W-TFM	PRE/S-XBS POWER AMP		JK1	RJJ35T02-1C	HEADPHONES JACK	
IC2	AN7379SHE2	DOLBY NR				<PRINTED CIRCUIT BOARDS	
IC5	AN6628SE2	MOTOR DRIVE				ASS' Y>	
IC6	TB2004FN006E	MECHANISM CONTROL		PCB1	REP1882A	MAIN P. C. B.	(RTL)
		TRANSISTOR(S)				PACKING MATERIAL	
Q1, 2	2SB815B7TX	TRANSISTOR		P1	RPK0464	PACKING CASE	
Q3	2SD1328STXRA	TRANSISTOR		P2	RPQF0126	ACCESSORIES BOX	
Q4	DTA114WUT106	TRANSISTOR		P3	RPQ0409	PAD	(E, EB)
Q5	2SD1819STX	TRANSISTOR		P3	RPQ0401	PAD	(GH)
Q7	DTA143ZUT106	TRANSISTOR		P4	RPF0127	PROTECTION BAG	(GH)
Q8	2SD1819RTX	TRANSISTOR				ACCESSORIES	
Q400	2SD1819STX	TRANSISTOR					
Q450	DTA143ZUT106	TRANSISTOR		A1	RQT2411-B	INSTRUCTION MANUAL	(E, EB)
		DIODE(S)		A1	RQT2412-E	INSTRUCTION MANUAL	(E)
D1	MA153TX	DIODE		A1	RQT2413-Z	INSTRUCTION MANUAL	(GH)
D4	LN1261CTR	L. E. D.		A2	RFA0310-K	BATTERY CASE	
		VARIABLE RESISTOR(S)		A2-1	RKK0053-K	BATTERY COVER	
VR1	EVJTOVA05A54	VOLUME		A3	RFEV124P-KS	STEREO EARPHONES	
VR301	EVM1SX50B13	TAPE SPEED ADJUSTMENT		A4	RP-BP62EYA	RECHARGEABLE BATTERY	(E, EB)
		TRANSFORMER(S)		A4	RP-BP61SY-1	RECHARGEABLE BATTERY	(GH)
T1	RLO9016T-T	TRANSFORMER		A5	RP-BC155EY-0	BATTERY CHARGER	(E) \triangle
		PHOTO COUPLER(S)		A5	RP-BC161SYB	BATTERY CHARGER	(GH) \triangle
Z1	GP2S27T6	PHOTO COUPLER		A5	RP-BC155EBYA	BATTERY CHARGER	(EB) \triangle
		SWITCH(ES)		A6	RQCB0169	SERVICENTER LIST	
S1	RSS2A002-A	FWD/REV		A7	RQA0013A	WARRANTY CARD	(E, EB)
S2	RSS2A009-A	HOLD		A8 ※	RKB205ZA-0	EAR PADS	
S3	RSS2A009-A	REVERSE MODE		A9	RFC0019-K	CARRYING BAG	(E, EB)
S4	EVQPM1A15	REW/TPS		A10	RJPOK2ZA	AC PLUG ADAPTOR	(GH) \triangle
S5	EVQPM1A15	FF/TPS					
S7	EVQPM1A15	PLAY/STOP					
S8	RSH1B06-2U	LEAF (OPEN/CLOSE, TAPE)					
S9	RSS2A009-A	DOLBY NR					

Notes:

- The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
- ※ This part is supplied only with replacement parts list.